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United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

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Part 1

Environmental Services Division

May 1983

EPA

Investigation of Soil And Water Contamination At Western Processing, King County, Washington

September to November, 1982

INVESTIGATION OF SOIL AND WATER CONTAMINATION

AT WESTERN PROCESSING INC., KING CO., WA

PART I OF II

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY - REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

MAY 1983

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ACKNOWLEDGEMENTS

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1.0 SUMMARY

Western Processing, Inc., Kent, Washington, which operated as an industrial waste recycling facility, was suspected of having contaminated soil, groundwater and surface water on and around its 13-acre site.

During October 1982 a series of 32 on-site holes and six offsite holes from 15 to 30 feet deep were excavated at 30 locations in order to sample the soil and to install wells and well points. Eleven samples of surface soil and seven hand augered samples of soil from a berm on the east edge of the site were also taken. In all, 130 soil samples were taken and 35 groundwater samples were obtained from the wells and well points. Additionally, the water used to wash down personnel, vehicles and equipment coming off the site was sampled. All samples were analyzed for a wide variety of organic chemicals and metals, and groundwater was checked for acidity and alkalinity.

Significant levels of many toxic substances were found in a high proportion of the soil and groundwater samples; these included 21 known carcinogens and 28 suspected carcinogens. Off site wells indicate that some of these toxic substances have migrated across the site boundaries. Contamination in the groundwater extends down to at least 30 feet from ground surface and out to at least 200 feet north of the site boundary. Groundwater levels under the site imply that contaminated groundwater will move offsite to west, east and north.

At least 19 of the soil samples and six of the groundwater samples were defined as hazardous waste by the standards of the Resource Conservation and Recovery Act (RCRA) by reason of their content of soluble toxic metal. In one well the groundwater was so alkaline that it was a RCRA hazardous waste by reason of its corrosivity. The used wash water collected after decontamination of vehicles, personnel and equipment, contained high levels of lead and other toxic substances.

2.0 INTRODUCTION

Western Processing began operations in 1957 as an animal by-products and brewer's yeast processor. Since then the operation expanded to include the handling of solvents, flue dust, battery chips, acids, cyanides and a wide variety of industrial waste. The company has Interim Status as a storage facility for hazardous materials as regulated by the Resource Conservation and Recovery Act (RCRA). It has no state or local permits for discharge to a sewer, to surface water or to the ground and groundwater.

The site is located within the City of Kent but about four miles north of the central business district. It lies in Section 1, Township 22N Range 4E, Willamette Meridian, the entrance is at latitude 47°25'37"N, longitude 122°14'31"W, and the address is 7215 South 196th Street (see Fig. 1).

The facility occupies about 13 acres on which there is a small laboratory, a solvent recycling plant, a fertilizer plant, bulk storage tanks, drum storage areas, piles of flue dust, construction debris, and large cement-block above ground storage lagoons for liquid wastes, cooling water and process water. Mill Creek, also known as King County Drainage Ditch #1, runs across the northwest corner of the site from south to north. Along the eastern boundary the Kent Bicycle Trail occupies a former railroad right-of-way, along which runs a high voltage power line and a drainage ditch. Beyond these to the east is the Burlington Northern Railroad. Access is from South 196th Street along the northern boundary (Figure 2).

The site lies in the flood plain of the Duwamish/Green River. The area is very flat, with an average elevation around 20 feet above mean sea level.

During May 1982 the U.S. Environmental Protection Agency (EPA) conducted a stream survey around Western Processing Inc. (EPA 1982). Twenty-six of the priority pollutants (Appendix ~~A~~ B Part I) were found in the surface waters around the site, all of which were subsequently found on-site.

During June 1982 the Municipality of Metropolitan Seattle, (METRO), sampled surface water upstream and downstream of Western Processing in Mill Creek. A marked increase in heavy metal content, mostly zinc, was noted.

As a result of these findings and an on-site inspection, the EPA issued an order under Section 3013 of the Resource Conservation and Recovery Act (RCRA), to require the owner to conduct such monitoring as would be reasonable to acertain the nature and extent of hazard to human health or the environment presented by the site. After the site owner had declared himself unable to carry out the necessary monitoring, a court order was obtained to enable the EPA and its contractors to investigate the site.

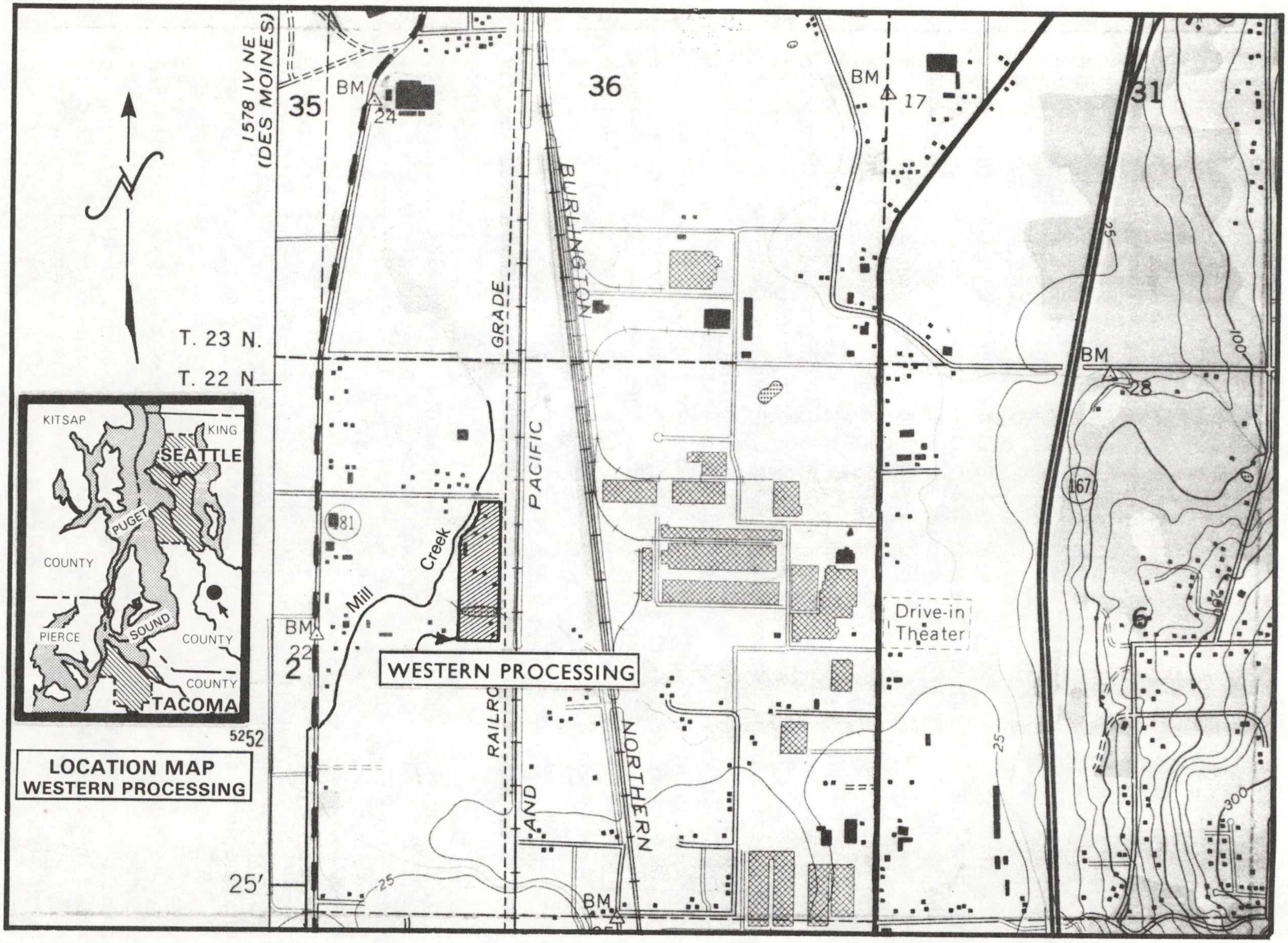
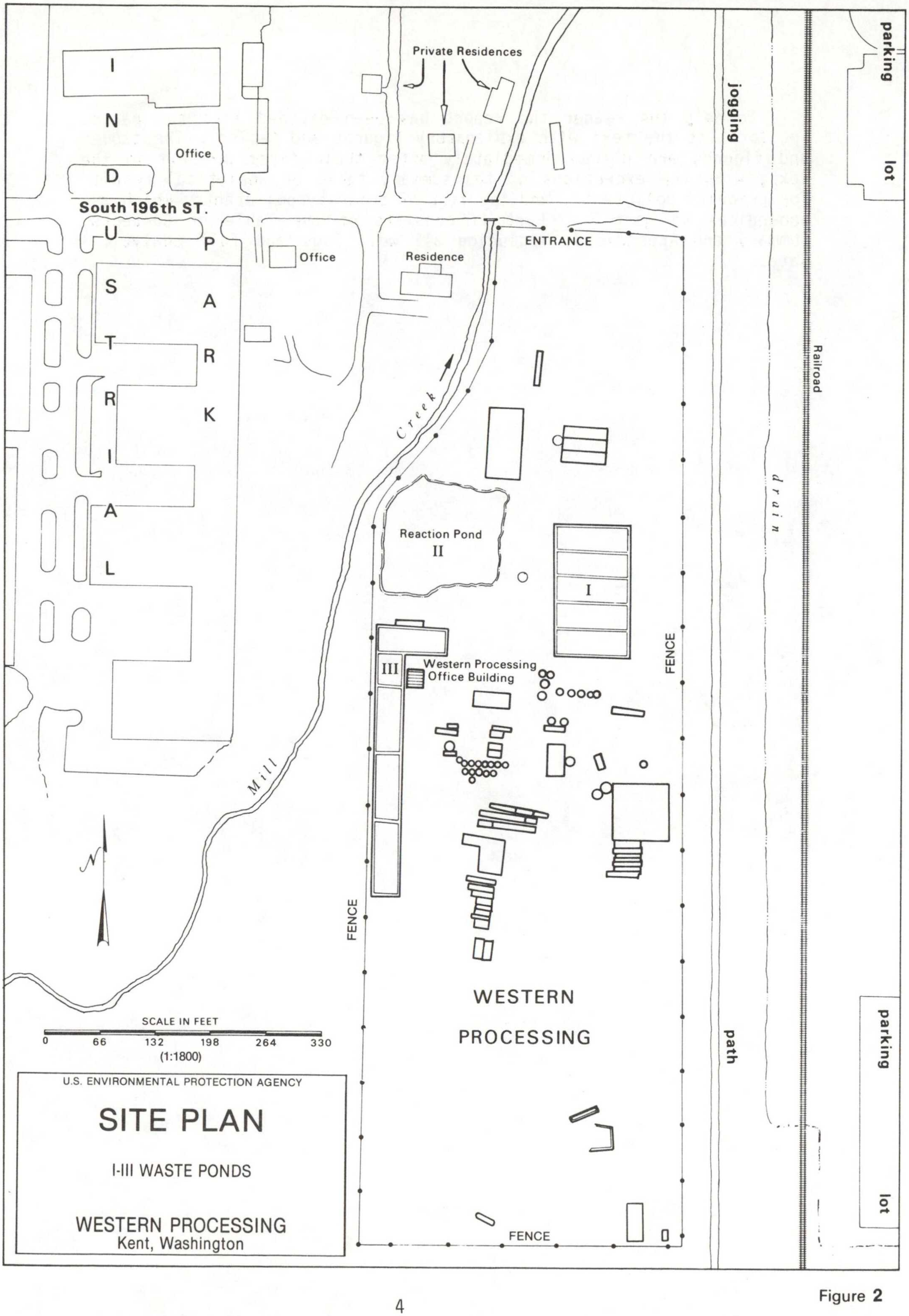


Figure 1
WESTERN PROCESSING
Kent, Washington


Private Residences
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R
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Office
South 196th ST.
Office
Residence
ENTRANCE
parking
lot
jogging
path
Railroad
drain
Creek
Mill
Reaction Pond
II
I
III
Western Processing
Office Building
FENCE
FENCE
FENCE
WESTERN
PROCESSING
N
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
parking
lot
U.S. ENVIRONMENTAL PROTECTION AGENCY
SITE PLAN
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington

Figure 2

To help the reader the report has been divided into two parts. The first is the text with explanatory figures and tables. The tables and figures are placed immediately after their first mention in the text, with the exceptions of the summary table of analytical results for priority pollutants, and the list of priority pollutants, which are appendices to Part I. Part II consists of the Table of Contents, Summary and Appendices, including all well logs and full analytical data.

3.0 GEOLOGY AND HYDROLOGY

The Green River valley lies within the Puget Sound Lowland which consists of a broad plain of glacial sediments cut into by a network of marine embayments. The Green River valley was formerly one of those embayments and is filled with sand, gravel, silt and clay brought down by the White, Green, Black and Cedar Rivers (Mullineaux, 1970).

During the course of the investigation, the Western Processing site itself was found to be underlain by sand, silt, gravel, clay, peat and artificial fill. In places as much as six to eight feet of fill were recorded and in Well 22B battery casings were reported mixed with silty sand from 15 to 24 feet. Clay was encountered in a number of boreholes at depths from 6-15 feet, being more common under the northern part of the site, at Wells 1A, 2, 4, 5, 6, 7, 8, 9, 10, 11A, 12, 14, 17, and 20, but absent at Wells 18, 22B, 23, 24, and 25B (see Fig. 3 and Appendix A Part II). The clay is gray to bluish gray in color and contains organic material. It was probably laid down in a lake, or lakes, which were common in the Green River valley (Mullineaux, 1970), and varies in thickness from one to four feet. The commonest materials encountered in boreholes were fine sand, light brown or grayish brown, and silt, gray to grayish brown, often mixed with some clay.

The water table was found at very shallow depths, ranging from 3 to 12 feet and averaging 6 feet from the surface. At Well 19, which was installed in a depression north of S. 196th Street the water flowed out at the surface. Water level measurements taken on November 15, 1982 (Table 1) suggest that the relatively permeable material at the surface within the facility and the lack of vegetation have resulted in a higher rate of percolation of rain into the ground than in surrounding areas. This appears to have created a groundwater "high" or mound under Western Processing (see figs. 4 & 5). Although the predominant flow directions of groundwater are west and north to Mill Creek, the mound would cause flow to the east and even south within the site for a short distance as well. The flow at Well 19 is probably a response to this local increase in hydraulic head under a confining clay layer.

There are higher hydraulic heads in the shallow wells of adjacent pairs such as 11A, 11B and 17A, 17B (Table 1). This indicates that the groundwater mound has created a hydraulic head which is driving groundwater down into the aquifer at least to levels below 30 feet, since flow is always from higher hydraulic head to lower.

A berm along the east side of Western Processing now mostly prevents surface runoff in that direction. Surface runoff from the site was observed during the site investigation going west to Mill Creek or out of the front gate and down into a depression outside the north east corner of the site.

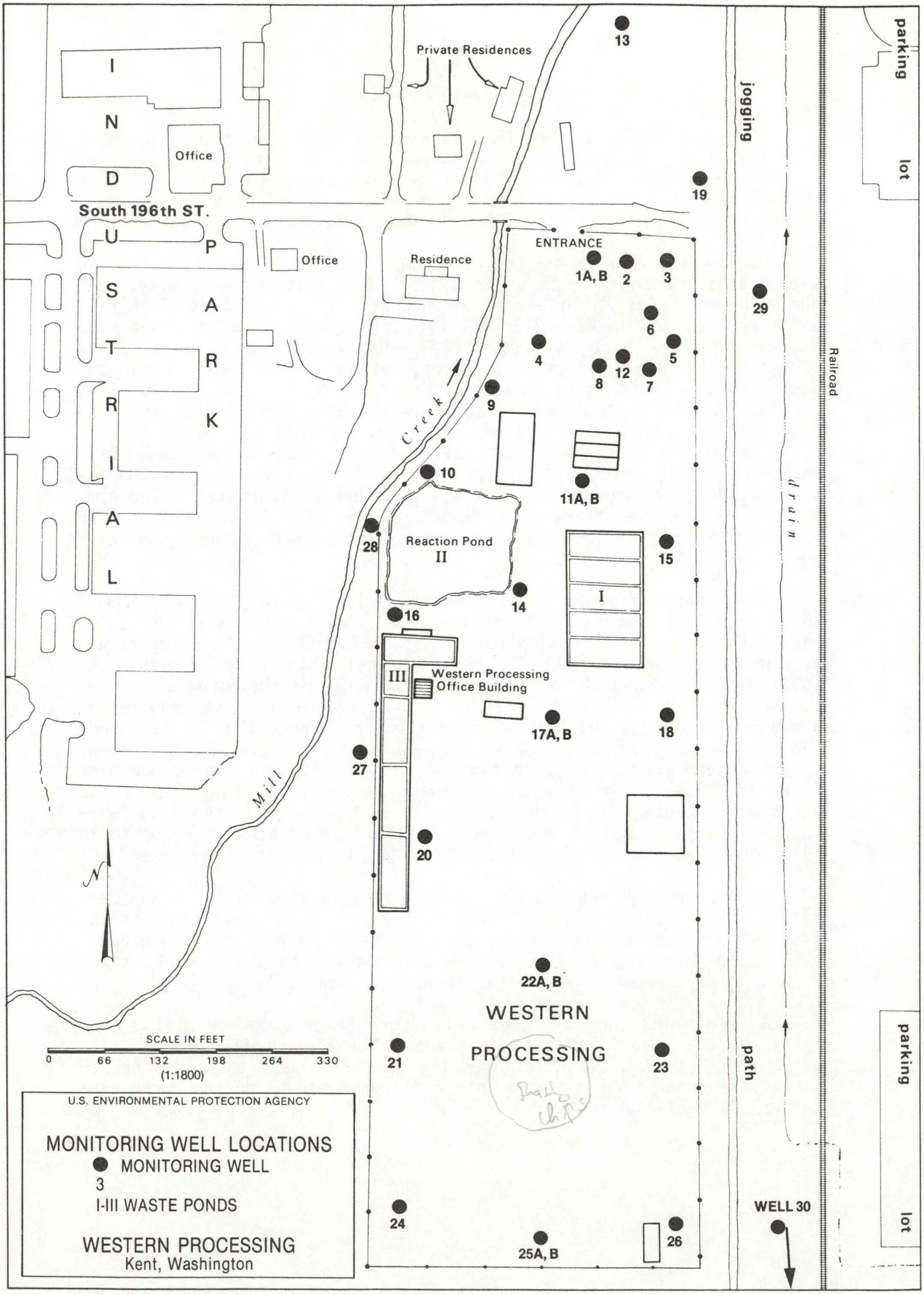
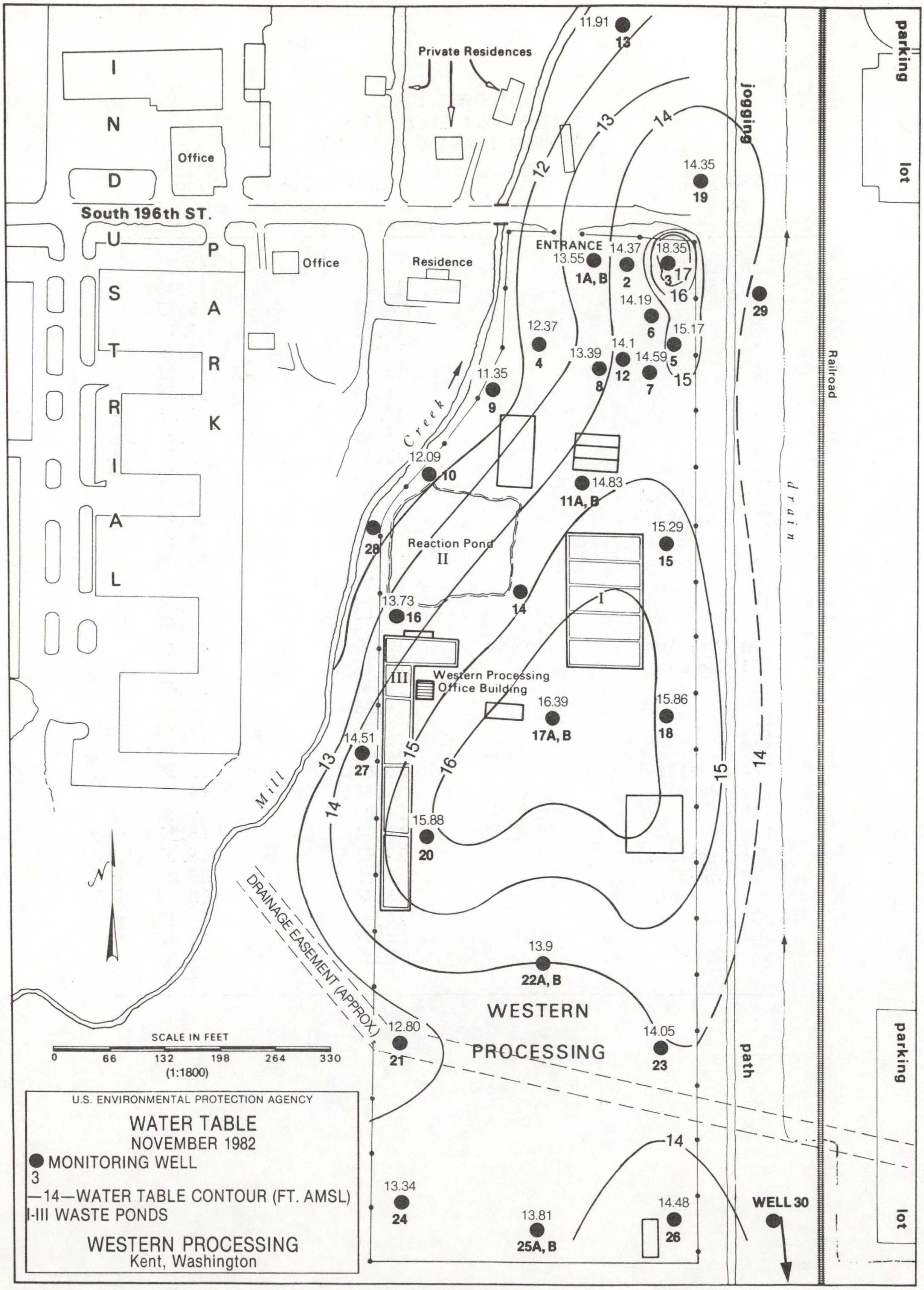

Private Residences
13
I
N
Office
D
South 196th ST.
U
P
Office
Residence
ENTRANCE
1A, B
2
3
19
jogging
parking
lot
S
A
T
R
R
K
I
A
L
29
6
4
5
12
8
7
9
Creek
10
11A, B
28
Reaction Pond
II
15
I
14
16
III
Western Processing
Office Building
17A, B
18
27
Mill
20
Railroad
drain
22A, B
WESTERN
PROCESSING
SCALE IN FEET
0
66
132
198
264
330
(1:1800)
21
23
path
parking
WELL 30
24
26
25A, B
lot
U.S. ENVIRONMENTAL PROTECTION AGENCY
MONITORING WELL LOCATIONS
MONITORING WELL
3
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington

Figure 3

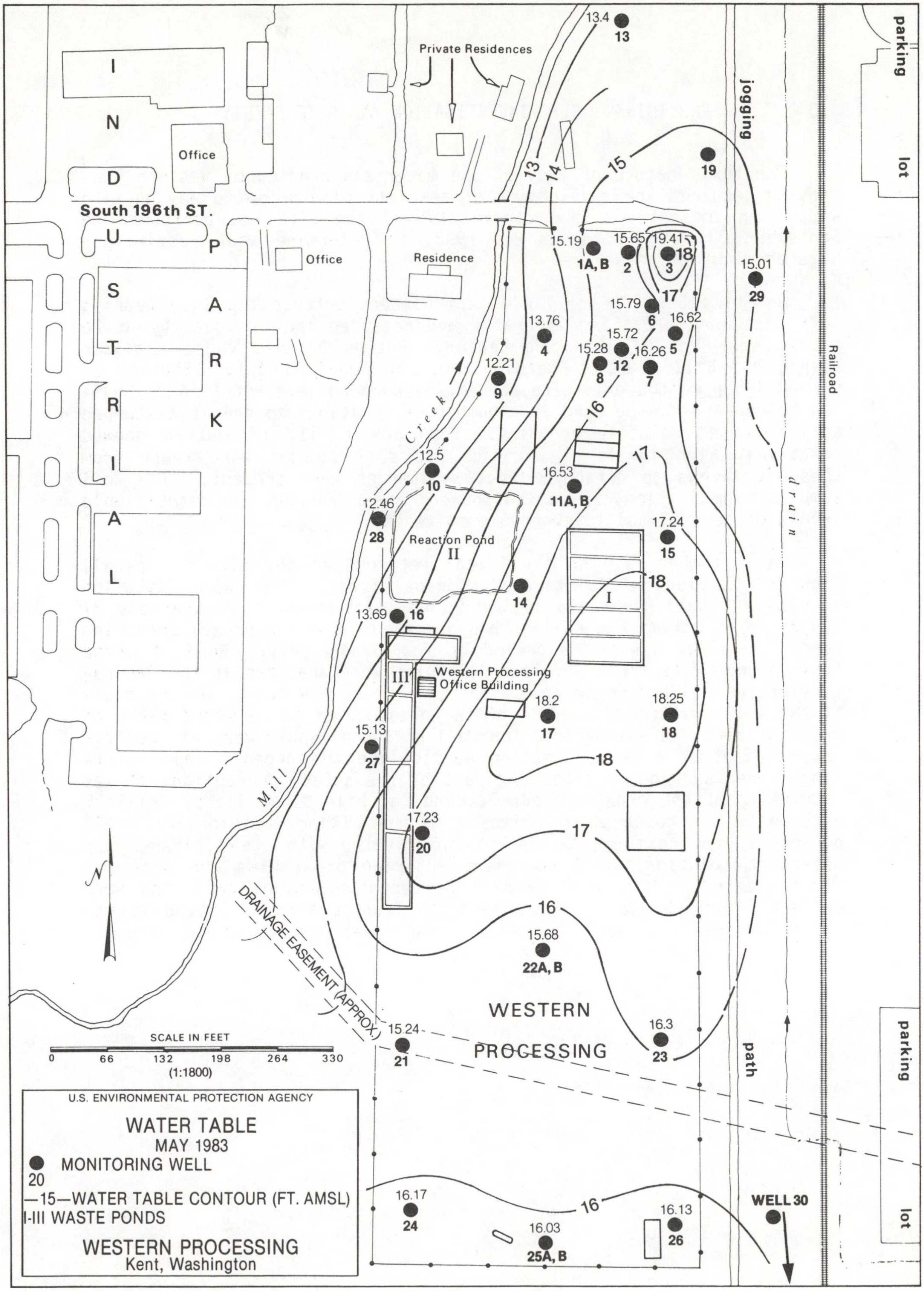
TABLE 1
WATER TABLE ELEVATIONS
NOVEMBER 1982 AND MAY 1983

Observation Well Number	Water Table Elevations (Feet Above Mean Sea Level November 1982	May 1983
1A (shallow)	13.55	15.19
1B (deep)	12.86	14.40
2	14.37	15.65
3	18.35	19.41
4	12.37	13.76
5	15.17	16.62
6	14.19	15.79
7	14.59	16.26
8	13.39	15.28
9	11.35	12.21
10	12.09	12.50
11A (shallow)	14.83	16.53
11B (deep)	12.94	14.97
12	14.10	15.72
13	11.91	13.70
14	Cap Rusted On	---
15	15.29	17.24
16	13.73	13.69
17A (shallow	16.39	18.20
17B (deep)	12.72	14.57
18	15.86	18.25
19	14.35	---
20	15.88	17.23
21	12.80	15.24
22A (shallow)	13.90	15.68
22B (deep)	13.77	14.72
23	14.05	16.30
24	13.34	16.17
25A (shallow)	13.81	16.03
25B (deep)	13.85	15.89
26	14.48	16.13
27	14.51	15.13
28	---	12.46
29	---	15.01



U.S. ENVIRONMENTAL PROTECTION AGENCY
WATER TABLE
NOVEMBER 1982
MONITORING WELL
—14—WATER TABLE CONTOUR (FT. AMSL)
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
INDUSTRIAL
PARK
South 196th ST.
Office
Private Residences
Residence
ENTRANCE
Mill Creek
Reaction Pond II
Western Processing Office Building
WESTERN PROCESSING
DRAINAGE EASEMENT (APPROX.)
jogging path
drain
Railroad
parking lot
WELL 30

Figure 4



INDUSTRIAL PARK
South 196th ST.
Office
Office
Residence
Private Residences
jogging path
parking lot
parking lot
Railroad
drain
Mill Creek
Reaction Pond II
I
III
Western Processing Office Building
DRAINAGE EASEMENT (APPROX.)
WESTERN PROCESSING
WELL 30
13.4 13
15.19 1A, B
15.65 2
19.41 3
15.01 29
19
15.79 6
16.62 5
13.76 4
15.72 12
15.28 8
16.26 7
12.21 9
12.5 10
16.53 11A, B
12.46 28
17.24 15
14
13.69 16
18.2 17
18.25 18
15.13 27
17.23 20
15.68 22A, B
15.24 21
16.3 23
16.17 24
16.03 25A, B
16.13 26
13
14
15
16
17
18
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
N
U.S. ENVIRONMENTAL PROTECTION AGENCY
WATER TABLE
MAY 1983
MONITORING WELL
20
—15—WATER TABLE CONTOUR (FT. AMSL)
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington

Figure 5

4.0 PRELIMINARY SITE INVESTIGATION AND SITE SAFETY

The toxic nature of many of the materials handled by Western Processing required the development of a safety plan prior to any on-site work. An ambient air characterization of the site was performed on September 23, and September 27, 1982, to determine what respiratory hazards might be present.

On September 23, the field team members entered the site wearing self contained breathing apparatus and measured the air quality at 26 sites (see Fig. 6), using a Century Systems Organic Vapor Analyzer (OVA), Model 128, and a Photoionizer, HNU Model PI 101. Station 17 showed 4-5 ppm, the only site above a background level of 1 ppm. Shallow holes were dug by hand at a number of locations to see if disturbed soil released volatile organics. Stations 3, 11, 17 and 20 showed relatively high levels of organics, so soil samples were taken from these locations to determine what substances were present. The soil samples from Stations 17 and 20 showed detectible but not quantifiable levels of several volatile organic solvents.

On September 27, the field team returned to the site to install High Vol samplers with activated charcoal tubes. Four were installed on-site at Stations 3, 11, 17 and 20 and two off-site at Stations 27 and 29 in an attempt to collect organic vapor from the normal breathing zone. Sampling was for a period of four hours only. None of these tubes showed detectible levels of organics when analyzed at the laboratory of Ecology and Environment, Inc., Buffalo, New York. On the basis of the soils data, and because of the presence of barrels and tanks of waste on-site, it was decided that all personnel would wear air purifying respirators with combination particulate and organic vapor cartridges when working on site. As part of the safety precautions it was required that the breathing zone around any hole being dug by drill or backhoe be monitored at all times with the OVA or photoionizer. All personnel leaving the site were decontaminated with steam cleaner and detergent solution. All equipment entering or leaving the site was steam cleaned. Wash water from these decontamination operations were collected into 55-gallon Department of Transporation approved drums. After analysis they were removed to an approved waste disposal site.

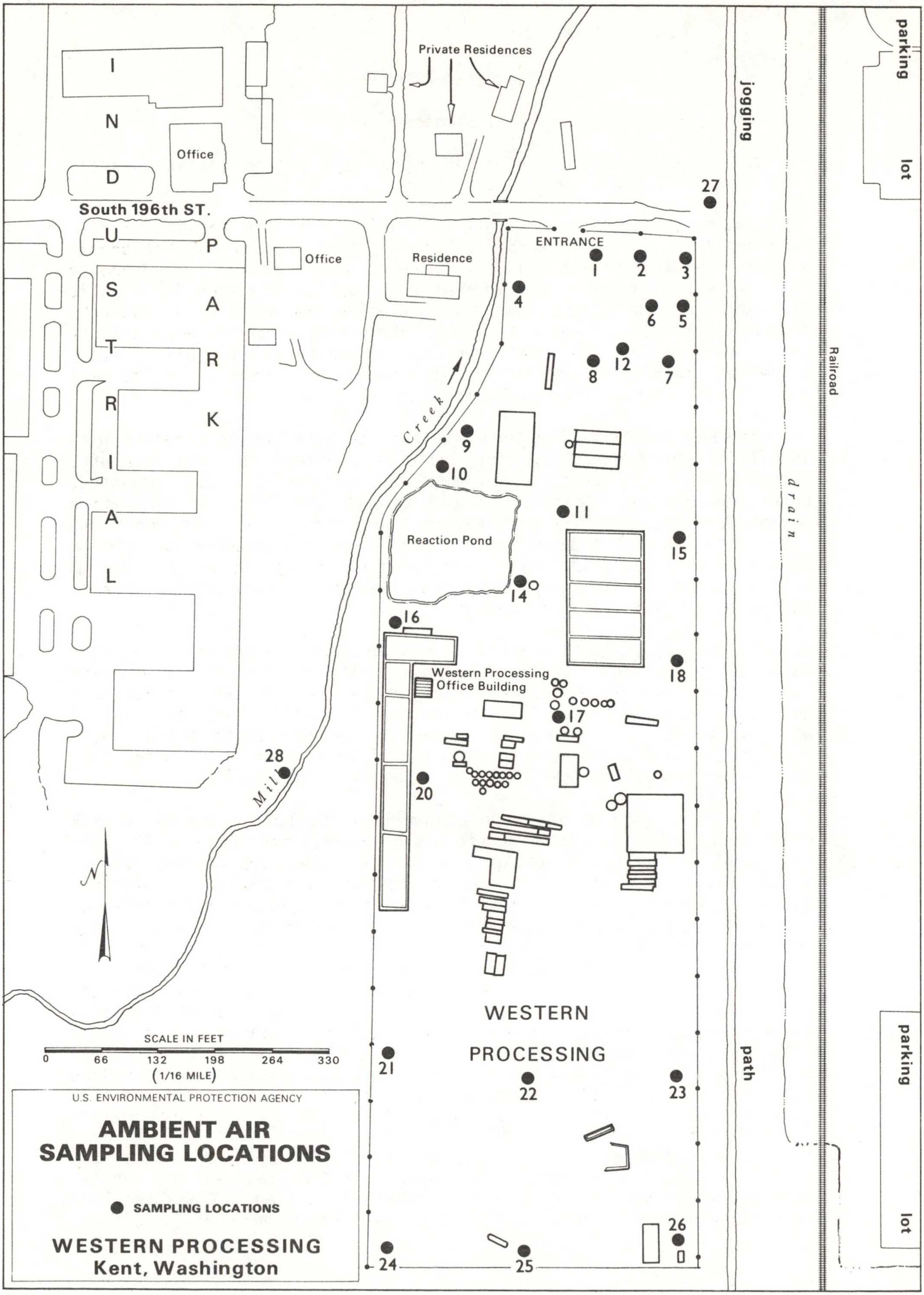

Private Residences
Office
South 196th ST.
INDUSTRIAL
PARK
Office
Residence
ENTRANCE
Creek
Mill
Reaction Pond
Western Processing Office Building
WESTERN PROCESSING
jogging path
drain
Railroad
parking lot
parking lot
N
SCALE IN FEET
0 66 132 198 264 330
(1/16 MILE)
1 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 18 20 21 22 23 24 25 26 27 28
U.S. ENVIRONMENTAL PROTECTION AGENCY
AMBIENT AIR SAMPLING LOCATIONS
SAMPLING LOCATIONS
WESTERN PROCESSING
Kent, Washington

Figure 6

5.0 SAMPLING PROGRAM

5.1 Well Installation and Soil Sampling

As a result of the EPA and METRO surveys and an on-site inspection, the EPA began site investigation.

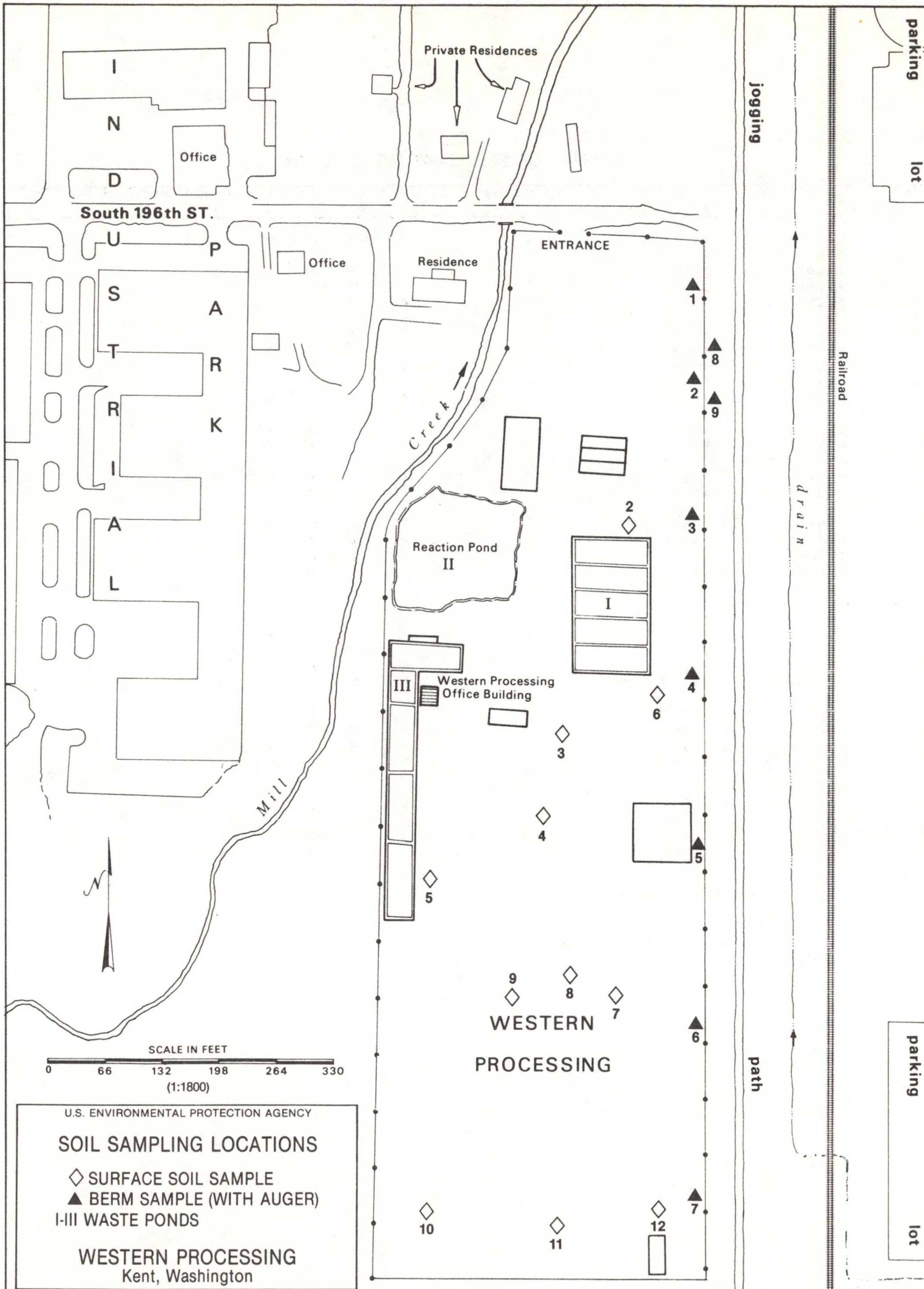
Sampling sites were proposed on the basis of the known site history and from review of archival imagery, that is, aerial photographs dating from 1960 through 1980. A number of wells were installed around the perimeter, and a number of two level wells (Stations 1, 11, 17, 22), were put in a line down the center of the site to investigate changes in hydraulic head with depth. Remaining locations were selected as being on the site of former lagoons, waste piles, spills, etc., or between such sites and the probable receiving waters to north, west and east of the site (see Fig. 2).

The EPA was initially informed that the site had been raised with demolition debris and that they must be prepared to find concrete, brick, reinforcing bars, etc. below the surface. It was proposed, therefore, to use a backhoe to dig through the fill, an excavation method that could handle such material and also expose the depth and type of fill. Holes deeper than the reach of the backhoe were to be drilled with a cable tool rig. The first two holes, at Wells 1 and at Well 11, were dug with the backhoe but exposed no demolition debris. Instead, sand and silt were common.

At Station 11 the level of volatile organics in the air around the backhoe pit was measured at greater than 1000 ppm. For this reason and because the site owner claimed that the backhoe pits were creating a hazard for his employees, it was decided to sample soil and install wells with the cable tool only. Later it was decided to bring a soil sampling drill rig on-site to sample soil with a small diameter (3") solid stem auger, and to install well points in the holes.

The initial holes were dug and wells installed in the first week of October. The soil sampling rig was brought on-site October 12. On-site drilling was completed by October 26. Because of the methods used, none of the soil samples is of undisturbed material. Contamination from levels other than that being excavated was minimized by carefully cleaning up the hole before sampling, in the case of the backhoe and auger, and by driving down steel casing behind the bit to shut off the upper part of the hole when the well was being constructed using the cable tool rig. Samples taken with the cable tool from below the water table were scraped off the bit. For a summary of soil samples taken from well locations see Table 2. Each soil sample was collected into two 8-oz. wide mouth glass jars with teflon-lined lids. The soil was scooped with a gloved hand into the bottles. Between each sampling an outer disposable vinyl glove was discarded and an inner butyl rubber glove washed in clean water, brought onto the site by the field team.

Nine samples were also collected with a hand auger, on October 25, along the east side of the site. Seven came from between one and two feet below the surface of a berm of material scraped off Western Processing's yard and heaped up along its east side to prevent run-off in-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Residence
ENTRANCE
jogging
path
parking
lot
parking
lot
Railroad
drain
Mill Creek
Reaction Pond
II
I
III
Western Processing
Office Building
WESTERN
PROCESSING
1
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3
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6
7
8
9
10
11
12
N
SCALE IN FEET
0
66
132
198
264
330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
SOIL SAMPLING LOCATIONS
◇ SURFACE SOIL SAMPLE
▲ BERM SAMPLE (WITH AUGER)
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington

Figure 7

TABLE 2
SUMMARY OF SOIL SAMPLING LOCATIONS

Well Number	Method of Drilling	Method of Sampling	Depth to Well Point (ft.)	Depths at which samples were collected (ft.) 3	6	9	12	15	18	21	24	27	30
1A	backhoe	backhoe	12	x	x	x	x						
1B	cable tool	----	30										
2	auger	auger	12	x	x	x	x	x					
3	auger	auger	12	x	x	x							
4	auger	auger	15	x	x	x							
5	auger	auger	12	x	x	x	x						
6	auger	auger	12	x	x	x	x						
7	auger	auger	12	x	x	x							
8	cable tool	auger	16	x	x	x							
9	auger	auger	15	x	x	x	x						
10	auger	auger	15	x	x	x	x	x					
11A	backhoe	backhoe	12	x	x	x*	x						
11B	cable tool	----	29										
12	auger	auger	11	x	x	x	x	x					
13	auger	auger	9	x	x	x							
14	auger	auger	15	x	x	x	x	x					
15	cable tool	auger	16	x	x	x							
16	auger	auger	15	x	x	x	x	x					
17A	cable tool	cable tool	15	x	x	x	x	x					
17B	cable tool	cable tool	30						x	x	x	x	x
18	cable tool	auger	16	x	x	x							
19	auger	auger	6	x	x	x	x						
20	auger	auger	15	x	x	x	x	x					
21	auger	auger	15	x	x	x	x	x					
22A	cable tool	cable tool	15	x	x	x	x	x					
22B	cable tool	----	27										
23	cable tool	auger	15	x	x	x							
24	auger	auger	15	x	x	x	x	x					
25A	cable tool	auger	16	x	x	x							
25B	cable tool	----	26										
26	cable tool	auger	16	x	x	x							
27	auger	auger		x	x								
28	auger	auger	12	x	x	x							
29	auger	auger	12	x	x	x							
30	auger	auger	12										

118

* Samples collected at 8 ft. and 10 ft.

---- No sample collected since soils were documented in adjacent hole.

to a ditch outside the east fence. The remaining two samples came from within the ditch at the north end of the site where a pipe protrudes through the berm and boundary fence and where the material in the ditch is stained as if by spilled material (see Fig. 7). These were handled in the same manner as the other soil samples.

Eleven samples of surface soil were collected November 18, from what appeared to be spill sites (see Fig. 7). These were scraped up with the sample container and pushed into the bottle with the teflon-lined lid. The outside of all sample containers were washed before being packed.

Backhoe and cable tool holes had 4-inch PVC casing and slotted screen set in them, the screen was surrounded with gravel pack of pea gravel and a mixture of bentonite and sand placed around the casing to provide a seal up to the surface (see Appendix A Part II). The 3-inch holes drilled with the solid stem auger had stainless steel well points on 2-inch black iron pipe driven down into them. Both wells and well points then had a 6-inch steel casing cemented in around the top of the well and capped with a padlocked steel cap. All wells were surged and bailed or pumped to yield relatively sediment free water as part of well completion. The depth from which water samples were taken depends, of course, on the depth at which the well screen is set (see Appendix A Part II).

5.2 Groundwater Sampling

After all monitoring wells had been installed and water levels measured, all of them were pumped with a Robb Air Pump until either three times the volume of water standing in the casing had been discharged or the well was dry. The first three wells pumped, Nos. 2, 13, and 19 were pumped onto the ground. Later the water pumped from wells was collected into drums and stored with the wash water from the decontamination station. To reduce cross contamination to a minimum the pump and its discharge line were submerged in potable water from the City of Kent fire hydrant and run for five minutes between each well.

Each well was allowed to recharge and then sampled with a stainless steel bailer which had been washed with distilled water and rinsed with reagent grade acetone and then with pure methanol followed by distilled water again. The bailer was then allowed to dry. The bailer was lowered into each well on a monofilament line. A new line was used for each well. On-site wells were sampled from November 1, 1982 to November 12, 1982. Off- site wells were sampled on November 15, 1982.

The bailer's and sampler's gloves were rinsed twice with the water being sampled and then the sample containers were rinsed. Each prelabeled container was then filled and its outside washed off with potable water before it was placed in an ice chest. Two half-gallon brown glass bottles with teflon-lined lids were collected for extractible organics analyses, two 40-ml glass vials with teflon-lined lids for volatile organics and two 1000-ml polyethylene containers for heavy metals and for cyanide analyses. An additional 500-ml polyethylene container was filled to be checked for total dissolved solids and chloride (Table

3). At the time of sampling the conductivity and pH of the water was checked (see Table 4).

5.3 Wash Water and Waste Water Samples

Water used at the decontamination station and from well pumping was collected into recycled steel drums as noted above. At the end of each week a composite sample of water was taken with new glass tubing. Two 1/2-gallon brown glass bottles with teflon-lined lids and two 1000-ml polyethylene containers with teflon-lined lids were filled.

5.4 Chemical Analysis

All but the total dissolved solids/chloride samples from groundwater and wash water/waste water samples were sent to contract laboratories. California Analytical Laboratories, Sacramento, California, analyzed inorganics samples, and Mead CompuChem, Research Triangle Park, North Carolina, analyzed organics. All soil and groundwater samples were analyzed for the heavy metals, acid extractible organics, base/neutral extractible organics and volatile organics on the priority pollutant list (see Appendix A Part I).

All wash water/waste water samples were sent to the EPA Region X Laboratory in Manchester, Washington, to be analyzed for arsenic, mercury, cadmium, nickel, lead, zinc and for polychlorinated biphenyls (PCBs) and benzo[a]pyrene. These parameters were required by METRO as a precondition for discharge to the sanitary sewer. The water was found to be too highly contaminated for this, however.

For the organic priority pollutants the laboratory used analytical methods 601-613 (Federal Register, vol. 44, p. 34408, June 14, 1979). For the metals the laboratory used atomic adsorption (AA) spectroscopic or inductively coupled plasma optical emission spectroscopic methods (Federal Register, vol. 41, p. 52780, December 1, 1976). Levels of detection are established by the contract between EPA and the laboratories, (EPA contract 68-01-6608).

It should be noted that groundwater samples to be analyzed for inorganics by these standard methods are iced, and filtered at the laboratory before being analyzed. In this way only dissolved metals are measured. Groundwater for organics analysis is not filtered at the laboratory. Instead it is extracted with organic solvent, and the solvent extract is analyzed. This process will tend to strip any organics adsorbed on any sediments particles present. Filtering before extraction would particularly tend to remove non-polar compounds which adsorb on sediment.

5.5 Sample Documentation and Handling

Prior to sampling the field team obtained station numbers from the EPA data storage and retrieval computer system (STORET) (Appendix D, Part II). The Sample Management Office of Viar and Co., Arlington, Virgina, assigned laboratories (see Section 5.4), and these assigned case numbers and laboratory numbers to the samples. The EPA Region X Laboratory also assigns laboratory numbers for samples sent there.

TABLE 3
Cl AND TDS RESULTS

Well#		Depth	Lab #	Cl(mg/l)	TDS (mg/l)
01	Water	Shallow	45150	101	1232
01	Water	Deep	45151	77	563
02	Water	Shallow	44154	224	2146
03	Water	Shallow	46153	1500	19832
04	Water	Shallow	44155	127	1716
05	Water	Shallow	44156	1737	20356
06	Water	Shallow	44157	599	6300
07	Water	Shallow	44158	388	2574
08	Water	Shallow	45152	136	3288
09	Water	Shallow	44160	1899	10828
10	Water	Shallow	44161	5968	33074
11	Water	Shallow	45153	1508	12580
11	Water	Deep	45154	1819	14650
12	Water	Shallow	44159	150	1952
13	Water	Shallow	44150	49	568
14	Water	Shallow	44163	2553	19852
15	Water	Shallow	45164	1670	9406
16	Water	Shallow	44164	1144	14712
17	Water	Shallow	45155	3394	19652
17	Water	Deep	45156	782	4636
18	Water	Shallow	45163	386	2254
19	Water	Shallow	44151	205	1782
20	Water	Shallow	44165	739	3340
21	Water	Shallow	44166	1202	4626
22	Water	Shallow	45157	396	2062
22	Water	Deep	45158	2202	6128
23	Water	Shallow	45162	590	3456
24	Water	Shallow	44167	11	652
25	Water	Shallow	45159	303	1170
25	Water	Deep	45160	34	280
26	Water	Shallow	45161	814	2026
27	Water	Shallow	46150	768	3544
28	Water	Shallow	46151	5447	18564
29	Water	Shallow	46152	2548	10780
30	Water	Shallow	51150	5	144
Transfer Blank			44152	1 u	5
Transport Blank			44153	1 u	8

Shallow = 6-16'
Deep = 26-30'

u = less than limit of detection

TABLE 4
CONDUCTIVITY AND PH READINGS

Well #	pH	Conductivity (Micromhos)
1A (shallow)	6.70	2000
1B (deep)	7.55	1400
2	6.58	35.5
3	13.00	>7500
4	6.68	1700
5	9.36	>7500
6	7.50	>7500
7	No Data	No Data
8	No Data	No Data
9	6.80	4800
10	4.58	>7500
11A (shallow)	4.84	5500
11B (deep)	4.79	>7500
12	No Data	No Data
13*	6.42	No Data
14	5.15	>7500
15	No Data	No Data
16	5.61	>7500
17A (shallow)	6.26	1100
17B (deep)	5.02	4000
18	No Data	No Data
19*	6.30	No Data
20	7.53	3300
21	No Data	No Data
22A (shallow)	6.55	420
22B (deep)	5.96	4500
23	6.79	4500
24	No Data	No Data
25A (shallow)	6.47	1600
25B (deep)	6.68	300
26	6.33	1700

*Off-site wells.

shallow well (12-16')
deep well (28-30')

Sampling procedures at the site were documented in a field log book. All containers were labelled and tagged. Samples going to the contract laboratories were accompanied by an Organic Traffic Report form or Inorganic Traffic Report form, and a copy of the Chain of Custody Record. Samples going to the Region X Laboratory were accompanied by an Analysis Required form, a Field Data Sheet and a Chain of Custody form. A summary of sample documentation is included in Appendix D Part II.

All containers were sealed with fiber tape; the outsides of liquid filled bottles were marked with grease pencil to indicate the level of liquid originally in the bottle. Sample containers going to the contract laboratory were packed in vermiculite inside a 4-mil polyethylene bag. This bag in turn was packed in an outer bag containing ice. The bags were placed inside ice chests that were sealed with fiber tape and custody tape. Packaging met the requirements of the National Enforcement Investigation Center (NEIC, 1980). Sample containers going to the EPA Region X Laboratory were placed in ice in plastic bags and packed in cardboard boxes sealed with fiber tape and custody tape. Ice chests were shipped via Federal Express, Inc., other samples were shipped via Kitsap Delivery Service, Inc.

All samples remained in the custody of the Field Investigation Team (FIT) of Ecology and Environment, Inc., until delivered to the respective shippers.

5.6 Quality Assurance Program

All sample containers were prepared under contract to the EPA by Ecology and Environment, Inc., 195 Sugg Road, Buffalo, New York. As a check on the containers and field procedures used to collect groundwater samples, distilled water filtered through activated charcoal was used to make up "transport" and "transfer" blanks of "organic-free water." A transport blank is one filled at the EPA laboratory, taken into the field and shipped to the contract laboratory. A transfer blank is one filled at the EPA laboratory, taken into the field and then transferred with a clean stainless steel bailer into clean sample containers which are then shipped to the contract laboratory.

In addition, two clean 8-oz. wide mouth glass jars of the type used to collect soil samples were shipped to each of the contract laboratories to be rinsed with purified water so that the rinsate could be analyzed. Samples of the water used by the driller in drilling cable tool holes and of the pea gravel used to gravel pack the wells were also submitted for analysis.

All data from the contract laboratories were reviewed by the FIT for completeness and checked for correct procedures, instrument performance (gc/ms calibration), and recoveries (surrogate and matrix spike). Standard run checks and method blanks were checked against sample results and sample retention times; mass spectral data were reviewed. Checks on the calculations of the quantities of the various priority pollutants were made especially in the case where high values were reported. All of the information was documented on forms provided by the EPA Region X Laboratory (Appendix E Part II).

Estimates of the quantities of the tentatively identified compounds (Appendix B Part II), were made by the FIT chemist, as quantification of these compounds is not required under the contract specifications of the contract laboratories.

6.0 RESULTS AND DISCUSSION

6.1 Introduction

Because of the number of samples (170, with blanks), and the large number of parameters checked, it is impossible within the scope of this report to discuss them all. Selected samples, generally those most contaminated, are discussed, together with the blanks and the background well (Well 30).

The transport blank, which was supposedly organic-free water and went unopened from the EPA laboratory to the contract laboratory, shows four volatile organics at trace concentrations (<5 to 20 ug/l), and trichloroethene at 76 ug/l. These could have been in the water or from the container. The transfer blank, which consisted of the same water run through the bailer into a fresh container, showed no volatiles, but picked up 140 ug/l of zinc. It seems likely that the volatiles were in the water but that the zinc came off the bailer. For this reason, as a precaution, only levels of zinc above 700 ug/l will be regarded as clear indication of contamination in water. The rinsate from empty soil sample bottles showed insignificant levels of some metals, but had 88 ug/l of methylene chloride. Although this may be from the laboratory rather than the container, levels of methylene chloride in a soil sample of less than 500 ug/kg will be considered questionable evidence of contamination. In general, contaminants in groundwater or soil found at levels less than five times these found in the appropriate blank are regarded as suspect and are shown in parentheses on the tables.

The pea gravel used by the driller in well construction showed traces of some metals and cyanide, but the potential impact on groundwater from the wells is negligable. The City of Kent water used by the driller was sampled and shows low levels of impurities. Only methylene chloride was significant (56 ug/l), and again may have come from the laboratory, but levels of methylene chloride of less than 250 ug/l should be regarded as suspect, where found in groundwater.

Conductivity and pH of groundwater can be useful measures of inorganic ions in the water and of the presence of acids or alkalies. These parameters were monitored for most of the on-site wells while they were being sampled (Table 4). For conductivity the numbers range from 35 to >7500 micromhos. Uncontaminated groundwater at Lakewood, Washington, for comparison, ranged from 130-290 micromhos and any figure over 1000 would indicate pollution. The pH values ranged from 5.02 to 13.00, with the later being classifiable as a corrosive waste by RCRA criteria (cf. Federal Register, Vo. 45, No. 98, p. 33122, May 18, 1980).

Because of questions raised about organics, mainly the pesticide and base/neutral extractibles groups, being carried by sediment into groundwater samples, particular note should be taken of water samples from those wells installed where the soils were heavily contaminated with these organics. The water in these wells show very low or no levels of these compounds and is evidently largely free of contaminated sediment.

6.2 Summary of Results

Because of the high levels of contamination encountered, generally only those instances where the soil exceeded 1000 mg/kg (ppm) dry weight of inorganics, or 1000 ug/kg (ppb) of organics are discussed. For the same reason only levels above 1000 ug/l of organics or inorganics in groundwater will be referred to, except when comparison with blanks or the background well (Well 30) is called for. These levels have no regulatory significance, but are used as indicators of gross contamination.

In all, 87 priority pollutants were detected on or close to the site, 67 of them in quantifiable levels. Twelve other hazardous materials were noted, 11 at quantifiable levels. Twenty-one of those compounds are considered carcingens and 28 are considered suspected carcinogens.

One or more inorganic priority pollutant exceededs 1000ppm in soil in 59 out of 130 samples (45%) and exceeded 1000 ug/l in groundwater in 28 out of 35 wells (80%). The percentage of samples in which organic priority pollutants exceeded 1000 ug/l in water or 1000 ug/kg in soil are 67.6% and 38.5%, respectively. Twenty out of 29 shallow wells and three out of five deep wells had one or more organic priority pollutants exceeding 1000 ug/l and nine out of 20 surface soil samples and 41 out of 110 borehole soil samples had one or more priority pollutants exceeding 1000 ug/kg.

Nineteen soil samples were classifiable as hazardous waste by RCRA definition, as were seven groundwater samples. Contaminant loading in soil and water both on-site and downgradient from it showed marked contamination in every case, ranging up to soil containing levels of priority pollutant metals of 9% and more.

It is clear that there has been widespread spillage, or leaking, or dumping of organic chemicals at this site, including material containing at least 36 priority pollutants in relatively high levels.

There is no doubt that the Western Processing site has created serious soil and groundwater contamination, and is contributing to air and surface water contamination.

6.3 Inorganics

The total dissolved solids (TDS) and chloride results (Table 3) are a good general index of pollution. When compared to Well 30 as background, all the on-site or near site wells are at least twice as high in chloride and TDS and range up to 1000 times greater in chloride at Wells 10 and 28 and over 100 times greater in TDS in Wells 3, 5, 10, 11, 14, 16, 17 and 28.

Of the inorganics measured, aluminum, iron, manganese and boron are relatively common elements. Water from 21 wells exceeded 10,000 ug/l in one or more of these pollutants and ranged up to 510,000 ug/l, compared to levels of undetected (<200), 4600, 1200 and 1200 ug/l of these elements in the background well, Well 30 (Appendix B Part II).

Of the priority pollutant metals (Appendix A Part I) zinc is the most common. Twenty-one water samples exceeded 1000 ug/l, ranging up to 510,000 ug/l in Wells 18 and 28. For comparison Well 30 had 32 ug/l. Thirty-three soil samples exceeded 1000 mg/kg ranging up to 81,000 mg/kg in surface soil sample No. 5. It seems clear that zinc has been leaching out of the soil into the groundwater.

Other notably elevated metals analyses were: chromium in six wells, with levels up to 65,000 ug/l (in Well 14), copper in eight wells, with a high of 13,000 ug/l (in Well 5), nickel in eleven wells, with a high of 280,000 ug/l (in Well 10). Background levels are, undetected, undetected, and 210 ug/l respectively, (in Well 30).

The two most toxic metals, after mercury, which does not appear to be a problem at this site, are cadmium and lead. These exceed 1000 ug/l in seven wells with lead at 3300 ug/l in Well 3 and cadmium at 60,000 ug/l in Well 10. For comparison the background well (Well 30), showed <1 ug/l cadmium and 21 ug/l lead. Lead in the soil exceeds 1000 mg/kg in 19 samples ranging up to 141,000 mg/kg near surface in Well 16. Cadmium in soils nowhere exceeds 420 mg/kg, but compared to lead a higher proportion of it seems to have leached into groundwater.

Cyanide was found at 35,000 ug/l in Well 5 but was not a widespread contaminant at high levels. Background level was undetected, in Well 30.

EP Toxicity tests were performed on the most highly contaminated soils samples (Federal Register, Vol. 45, No. 98, p. 33127, May 18, 1980). This test measures the amount of toxic substance, in this case metal, that will leach out of a specific weight of waste under given conditons. Waste failing the test are hazardous wastes by definition under RCRA. Nineteen soil samples failed the test (Table 5), in six cases groundwater also failed this test. Lead was extracted from one sample at a level 154 times the maximum permitted for waste to be classified non-hazardous. Samples containing chromium were checked for hexavalent chrome, the more toxic form of the metal, but none was found. No sample tested was a hazardous waste by reason of chrome content alone, however.

6.4 Organics

Twenty-nine of the organic priority pollutants exceeded 1000 ug/kg (ppb) in soils or 1000 ug/l in water. Sixty-nine samples from 31 sites are affected.

In the "pesticide" group four different polychlorinated biphenyls (PCBs) were noted in one or more samples, but in other samples the PCBs were grouped as one analysis. Since these compounds adhere strongly to soils it is not suprising that they were not detected in groundwater. In all, 13 soil samples from six well sites, two samples from the berm and two surface soils show high PCB values, the highest being the sample from six to nine feet at Well 15 (19,600 ug/kg).

TABLE 5
EP TOXICITY TEST RESULTS (ug/l)†

Station	METALS Chromium*	Cadmium*	Lead*
Soils			
Well 3 (6')		1,600	
Well 3 (12')		1,200	
Well 10 (6')		1,400	
Well 15 (9')		1,200	
Well 16 (3')			770,000
Well 16 (6')			19,000
Well 16 (9')	9,500		6,100
Well 20 (3')		4,200	27,000
Well 21 (3')		9,600	11,000
Well 21 (6')		1,300	
Well 23 (6')			21,000
Berm 3			8,100
Berm 7			6,800
Surface 3			19,000
Surface 4			7,000
Surface 5		12,000	18,000
Surface 6			350,000
Surface 7			220,000
Surface 12			35,000
Water Samples			
Well 10 (15')	17,000	60,000	---
Well 11 (15')	---	4,800	---
Well 11 (30')	---	3,900	---
Well 14 (15')	65,000	12,000	---
Well 17 (15')	32,000	4,500	---
Well 28 (15')	6,100	5,600	---

†Concentration of soluble metal in the test extract

*Standard for Chromium = 5,000 ug/l
Standard for Cadmium = 1,000 ug/l
Standard for Lead = 5,000 ug/l

In one soil sample (Well 6, 0-3ft) aldrin and dieldrin were found (2,860 ug/kg and 3340 ug/kg respectively). This is the only sample containing markedly elevated pesticide levels.

Of the base/neutral extractibles 16 were noted at levels greater than 1000 ug/kg (1 ppm). All 18 samples affected were soils, the most contaminated of which was surface soil sample #8 with approximately 5.1% by weight of priority pollutants, including 2.0% of phenanthrene and 1.6% pyrene.

The sample results in excess of 1000ug/kg (1ppm) are listed in Table 6.

TABLE 6 - BASE/NEUTRAL EXTRACTIBLES (>1ppm)

Compound	Number of Samples	Highest Value Found
Acenaphthene	3	5090 ppm
Hexachloroethane	1	1.8 ppm
Phthalates (as a group)	14	860 ppm
Benzo-[a]-anthracene	1	200 ppm
Fluoranthene	7	234 ppm
Naphthalene	3	5.2 ppm
Benzo-k-fluoranthene	1	130 ppm
Chrysene	4	1210 ppm
Anthracene	1	1.6 ppm
Fluorene	4	8600 ppm
Phenanthrene	9	20,000 ppm
Pyrene	8	16,000 ppm

The acid extractibles are all phenolics and of these six were found at levels above 1000 ug/l or 1000 ug/kg. The most important compound was phenol itself which was found in 12 wells and 13 soil samples. The highest concentration was in Well 27 which had a suprising 4,100,000 ug/l. Of the soil samples the most contaminated, (12-15 feet,Well 22), contained 65,000 ug/kg.

To summarize the highest levels of phenolics: pentachlorophenol was found in two soil samples including a surface sample with 17,000 ug/kg; 2,4-dichlorophenol was found in five soil samples, the highest level found being 7900 ug/kg between three to six feet in Well 10; 2,4-d-methylphenol was in two wells, the higher level being 1100 ug/l in Well 12, and in six soil samples including a surface soil containing 11,000 ug/kg; 2-nitrophenol was found off-site in Well 27 in the extraordinary concentration of 1,300 mg/l; and lastly, 4-nitrophenol was found in Well 15 at 3200 ug/l.

After the base/neutral extractibles, the volatiles group is the most heavily represented. Nine different priority pollutants occur at levels greater than 1000 ug/l or 1000 ug/kg. The highest level of any volatile found was 720,000 ug/l of methylene chloride in Well 15. Methylene chloride is also found at high levels in 12 other wells and nine soil samples. Trichloroethene is even more widespread, being found in 18 wells and eight soil samples. The most contaminated well is Well 15 again, with 210,000 ug/l. The most contaminated soil is also from Well 15 at three to six feet (580,000 ug/kg).

Toluene is found in water fromseven wells within the range of 1000-22,000 ug/l with the highest level in Well 17. Of the six soils samples in the >1000 ug/kg range the highest is also from Well 17 at three to six feet, and registered 394,000 ug/kg.

Chloroform is found in that same sample (Well 17, 3-6 feet), at 18,000 ug/kg, and in five groundwater samples, with the highest reaching 27,000 ug/l (Well 15). This well has the highest level for 1,1,1-trichloroethane at 340,000 ug/l while three others have high values also. Not suprisingly, of two soil samples contaminated with the same compound the higher is from Well 15 at three to six feet, (174,000 ug/kg). 1,1-dichloroethane is found at high levels only in two water samples, the higher again being from Well 15 (33,000 ug/l). Trans-1,2-dichloroethene is also found at high levels only in water. Of five wells affected the highest is Well 21 (390,000 ug/l). Lastly, ethylbenzene is found at significant concentrations in three soil samples, the worst being from Well 17 at three to six feet (37,000 ug/kg).

Besides these priority pollutants, which were selected as indicators of industrial pollution as the result of a consent agreement requiring the EPA to create a list of the most common such materials, there are many other hazardous substances. Twelve of these materials, acetone, benzoic acid, benzyl alcohol, 2-butanone, dibenzofuran, 2-hexanone, 2-methyl napththalene, 2-methylphenol, 4-methylphenol, styrene, 2,4,5-trichlorophenol and o-xylene, were noted; one or more occuring in 69 soil samples and 23 groundwater samples (Appendix B Part I). For example, acetone occurs in soil in levels up to 17,000 ug/kg (Well 17), and in groundwater in the same well is found at 130,000 ug/l. 2-butanone is also found in the soil in Well 17, at up to 580,000 ug/kg, and in the water at 460,000 ug/l.

Numerous other compounds were identified with varying degrees of assurance, and their levels estimated by the FIT (see Tentatively Identified Compounds, Appendix B Part 6 For example, 2-oxazolidinone, 2-(2hydroxypropyl)-5-methyl occurs quite commonly, reaching a level of 60,000 ug/kg (Well 9, soil, 6-9 feet).

6.5 Carcinogens

A number of known and suspected carcinogens were detected on and around the Western Processing site. The 21 known carcinogens found are listed on Table 7. The 28 suspected carcinogens, including two not on the priority pollutant list, are listed on Table 8.

6.6 Total Contaminant Levels

To give a better idea of the overall impact of the site, tables were constructed showing the total load of contaminants in selected water and soil samples. Analyses from six on-site wells, one background well, (Well 30), and one downgradient well, (Well 28, Fig. 3),

TABLE 7
KNOWN CARCINOGENS*
ON EPA PRIORITY POLLUTANT LIST

Pollutants Found On-Site	Pollutants Not Found On-Site
Arsenic	Acrylonitrile
Benzene	Benzidine
Benzo(a)anthracene	Bis (Chloromethyl) Ether
Benzo(b)fluoranthene	N-Nitrosodimethylamine
Benzo(a)pyrene	N-Nitrosodi-N-Propylmine
Beryllium	TCDD
Cadmium	Toxaphene
Carbon Tetrachloride	
Chloroform	
Chromium	
1,2-Dichloroethane	
Gamma BHC (Lindane)	
Nickel	
PCB-1016	
PCB-1221	
PCB-1232	
PCB-1242	
PCB-1248	
PCB-1254	
PCB-1260	
Vinyl Chloride	

*National Toxicology Program

TABLE 8
SUSPECTED CARCINOGENS*
ON EPA PRIORITY POLLUTANT LIST

Pollutants Found On-Site	Pollutants Not Found On-Site
Acenaphthene	Alpha BHC
Acenaphthylene	Chlordane
Anthracene	2-Chloroethyl Vinyl Ether
Benzo(k)fluoranthene	2-Chloronaphthalene
Benzo(ghi)perylene	3,3-Dichlorobenzidene
Bis(2-Chloroethyl)ether	Heptachlor Epoxide
Chlorobenzene	P-Chloro-N-Cresol
Chrysene	
1,2,5,6-Dibenzathracene (Perylene)	
Dieldrin	
4,6-Dinitro-O-Cresol	
Fluoranthene (Benzo(k)fluorene)	
Fluorene	
Heptachlor	
Hexachlorobutadiene	
Hexachlorocyclopentadiene	
Hexachloroethane	
Indeno (1,2,3-CD)pyrene	
Naphthalene	
N-Nitrosodiphenylamine	
Phenathrene	
Pyrene	
1,1,2,2-Tetrachloroethane	
2,4,6-Trichlorophenol	
1,2-Trans-Dichloroethylene	
Non PP Hazardous Materials (partial list)	
Dibenzofuran	
Styrene	

*Soderman, J. V. 1982

were tabulated (Table 9). Thirty-two priority pollutants were found in the on-site wells in measurable quantities. Twenty priority pollutants and five hazardous materials were found in the downgradient well, all of which were found on-site. Only four priority pollutants were found in significant levels in the background well. Total contaminant levels (both priority pollutant and others) are listed in Table 9, together with chloride, total dissolved solids and pH (where measured).

Priority pollutants are usually measured in parts per billion in water samples. Some are thought to have effects on human health even at these levels in drinking water. Carcinogens are generally thought to have no threshold below which they have no effect. Of the on-site priority pollutants in Table 9 eight are considered carcinogens and four are suspected carcinogens.

Total contaminants in the selected wells ranged from 53,323 ug/l to 1,359,982 ug/l (averaging 709,393 ug/l). The background well, in contrast, has a total contaminant load of 956 ug/l. Interestingly, the well most highly contaminated with priority pollutants is Well 27, outside the site. Because of the high levels of phenol and 2-nitrophenol the priority pollutant loading is 5,683,500 ug/l.

The analytical data for the soil samples shows total contaminant levels even higher than for water, particularly in the case of the inorganics. Selected soil samples (Table 10) shows lead up to 8.4% in one sample, zinc up to 8.1%, and several organics above the 1% level. Total contaminant loads for these samples range from 0.02% to an astonishing 9.93%.

The distribution of hazardous material in the soils and groundwater shows some interesting patterns. Priority pollutant metals in surface soils and average levels in borehole soils exceed 1000 ppm over most of the site (Fig. 8). Only at the northwest corner of the site around Wells 1, 2, 4, 6, 7, 8, 11 and 12, and at the south end of the site around Wells 24, 25 and 26 are lower levels encountered. This accords quite well with the distribution of total priority pollutant metals in shallow groundwater (Fig. 9). This is in excess of 100 mg/l off the northeast corner of the site in Wells 19 and 29, and in the middle of the site around Wells 10, 11, 14, 17, 18, 27 and 28. Levels are suprisingly low below the south part of the site and also in Well 16. The top 15 feet of soils in this well average an astonishing 4.6% lead, the highest in any well, but the lead level in the groundwater is only 470 ug/l.

The sum of all the volatile priority pollutants in soils from each well suggests that there are at least two major spill locations onsite, at Wells 15 and 17 (Fig. 10). The distribution of volatiles in the groundwater suggests that there may well be several more spills, upstream of Wells 21, 27, and possibly 14, for example (Fig. 11).

Non priority pollutant solvents show similar distribution with the exception of Well 15 (Fig. 12).

TABLE 9

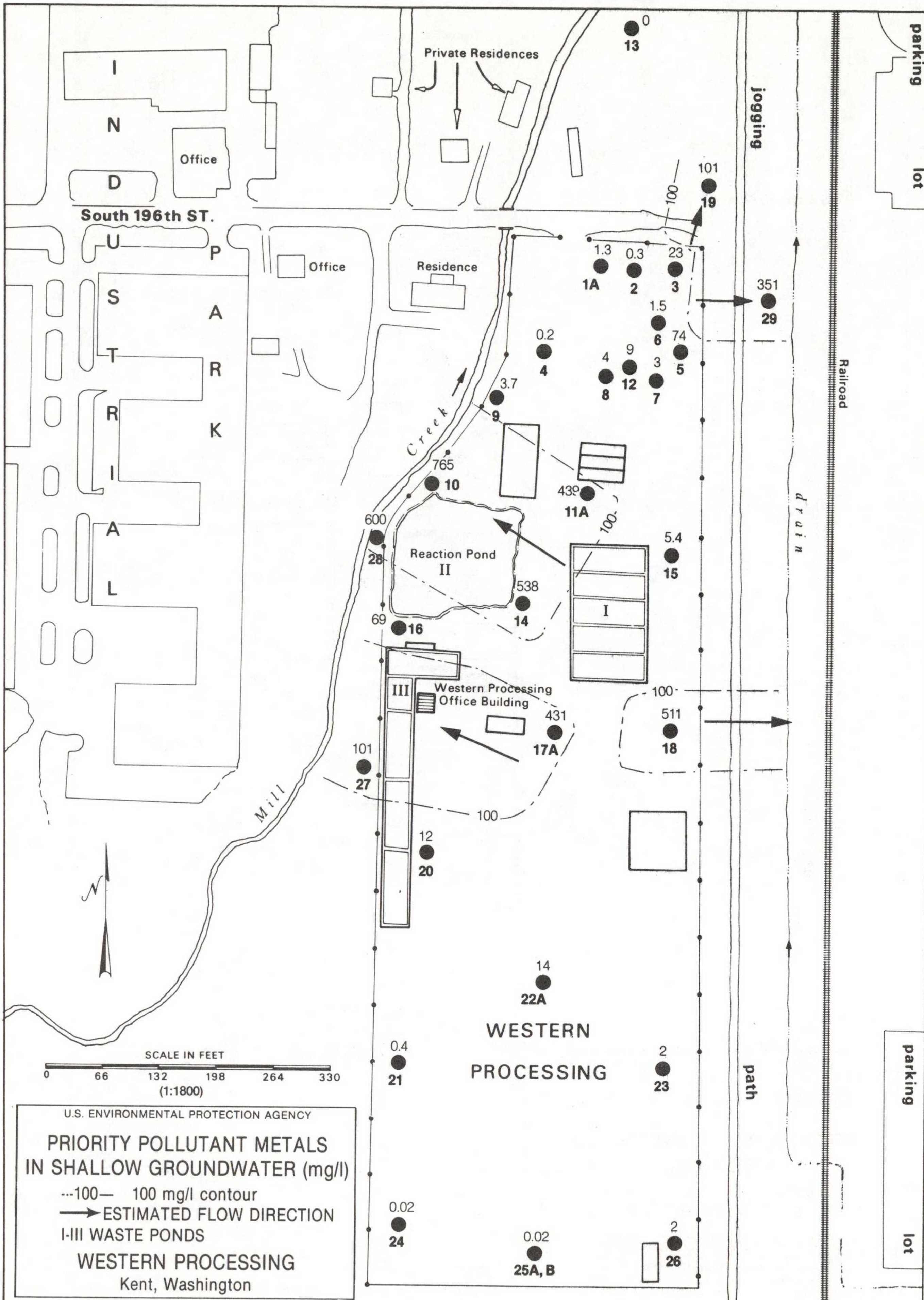
DATA SUMMARY FOR SELECTED WELLS *

Carcinogin Code **	Parameters	Well #5 (Shallow)	Well #15 (Shallow)	Well #17 (Shallow)	Well #17 (Deep)	Well #21 (Shallow)	Well #22 (Deep)	Well #28 (Shallow)	Well #30 (Shallow)
	Dissolved Metals	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
0 0	Chromium	400	170	32,000	680	160	22	6,100	-
	Copper	13,000	3,400	7,200	240	-	-	590	-
0 0	Nickel	25,000	360	26,000	3,200	320	280	77,000	210
	Zinc	(650)	(260)	360,000	160,000	(390)	(30,000)	510,000	(32)
0 0	Arsenic	-	-	32	-	-	32	25	-
	Antimony	-	-	-	-	-	26	-	-
	Selenium	-	-	-	-	-	4.1	-	-
	Mercury	0.28	1.1	0.83	0.83	0.28	46	-	0.31
0 0	Cadmium	160	(11)	4,500	(800)	-	77)	5,600	-
	Lead	-	-	1,600	210	-	-	6.5	21
	Silver	-	-	-	-	-	-	45	
	Miscellaneous								
	Cyanide	35,000	(1,200)	(92)	-	-	(36)	920	-
	Acid Extractibles								
0	2,4,6 Trichlorophenol	8,800	-	-	-	-	-	-	-
	2,4 Dimethylphenol	520	-	-	-	-	-	-	-
	2-Nitrophenol	-	-	-	300	190	-	-	-
	4-Nitrophenol	-	3,200	-	-	-	-	-	-
	Pentachlorophenol	1,400	-	-	-	-	-	-	-
	Phenol	270,000	4,900	91,000	380	10,000	-	4,000	-
	2,4 Dichlorophenol	-	-	-	-	-	-	220	-
	Base-Neutrals								
	1,2-Dichlorobenzene	-	160	-	-	-	-	-	-
	Bis(2-Ethylhexyl) Phthalate	-	-	-	-	-	-	-	544
	Isophorone	-	-	-	-	-	-	540	-
	Volatiles								
0 0	Benzene	77	-	2,200	-	-	-	-	-
0 0	1,2-Dichloroethane	-	16,000	-	-	-	-	-	-
	1,1,1-Trichloroethane	2,900	340,000	1,700	-	-	-	100	-
	1,1-Dichloroethane	320	33,000	-	-	-	-	-	-
0 0	Chloroform	130	27,000	12,000	130	-	7,800	-	-
	1,1 Dichloroethene	87	-	-	-	-	-	-	-
0	Trans-1,2-Dichloroethene	-	-	-	-	390,000	-	-	-
	Ethylbenzene	32	-	-	-	-	-	-	-
	Methylene Chloride	23,000	720,000	42,000	1,200	100,000	-	5,400	-
	Fluorotrichloromethane	-	-	920	-	-	-	-	-
	Tetrachloroethene	37	-	-	-	-	-	50	-
	Toluene	4,100	-	22,000	430	-	-	110	-
	Trichloroethene	16,000	210,000	42,000	830	170,000	17,000	840	-
0 0	Vinylchloride	-	-	-	-	360	-	-	-
	Pesticides								
	Aldrin	-	-	-	-	-	-	3.3	-
	Dieldrin	-	-	-	-	-	-	3.6	-
	Heptachlor	-	-	-	-	-	-	3.29	-
	Non-Priority Pollutant Hazardous Wastes								
	2-Methylphenol	980	-	-	-	5,500	-	8,000	-
	4-Methylphenol	3,000	320	64,000	320	4,900	-	600	-
	2,4,5-Trichlorophenol	8,800	-	-	-	-	-	-	-
	Acetone	13,000	-	130,000	12,000	-	-	2,820	-
	2-Butanone	6,100	-	460,000	28,000	-	-	2,500	-
0	Styrene	290	-	-	-	-	-	-	-
	O-Xylene	102	-	-	102	-	-	-	-
	Benzoic Acid	-	-	-	-	-	-	1,200	-
	Indicator Parameters	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
	Chloride	1,737	1,670	3,394	782	1,202	2,202	5,447	5
	Total Dissolved Solids	20,356	9,406	19,652	4,636	4,626	6,128	18,564	144
	PH	13	No Data	6.26	5.02	No Data	5.96	No Data	No Data

* See Appendix for complete tabulation

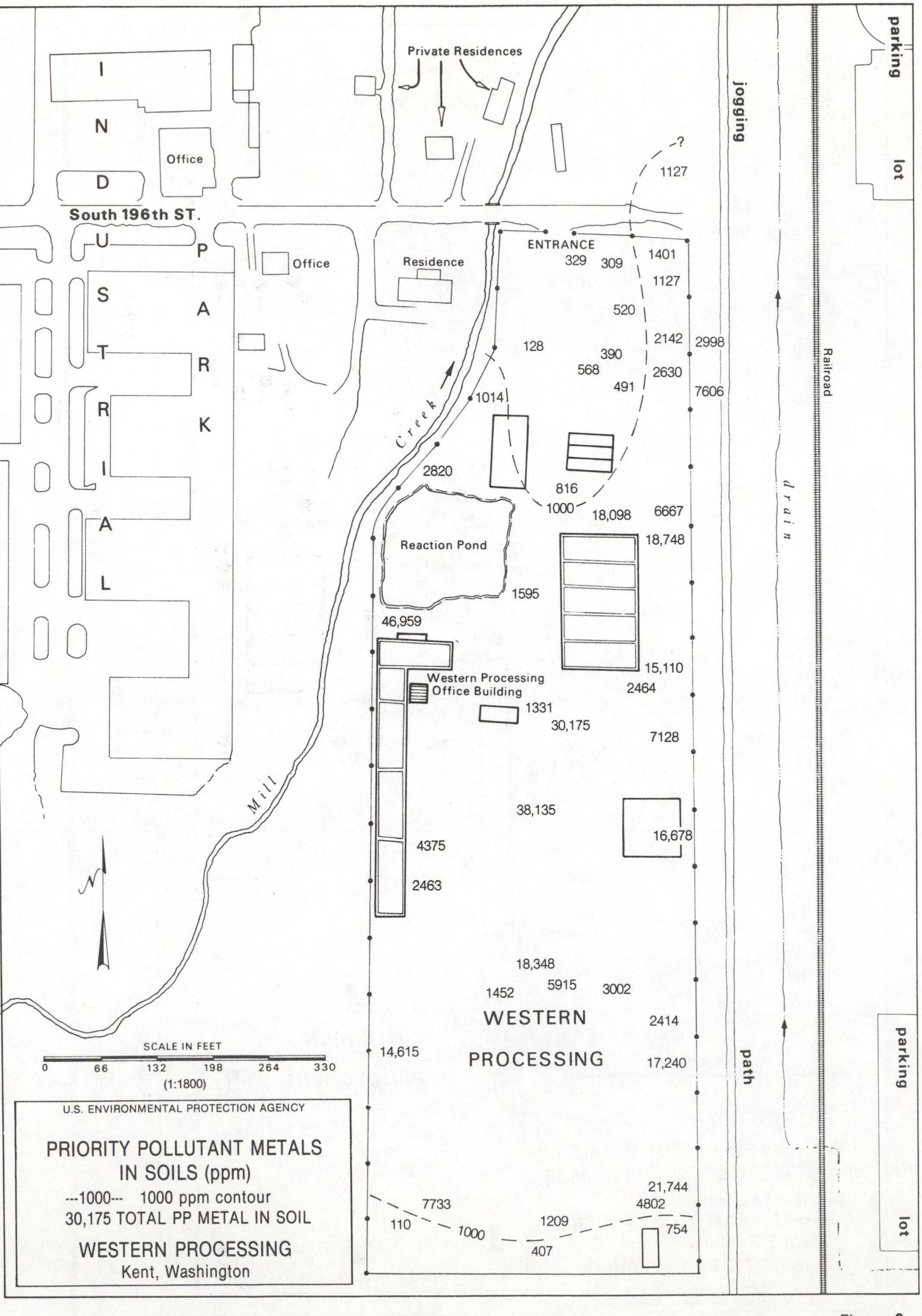
** 0 0 = Confirmed carcinogin (Listed on NTP list of "88" - 1982)

0 = Highly suspect based on frequency of positive results in lab animals/mutagenic screening, etc.



INDUSTRIAL
PARK
South 196th ST.
Office
Office
Private Residences
Residence
Mill Creek
jogging path
drain
Railroad
parking lot
parking lot
Reaction Pond II
I
III
Western Processing Office Building
WESTERN PROCESSING
100
0
13
101
19
1.3
1A
0.3
2
23
3
351
29
1.5
6
74
5
0.2
4
4
8
9
12
3
7
3.7
9
765
10
439
11A
600
28
5.4
15
538
14
69
16
431
17A
511
18
101
27
12
20
14
22A
0.4
21
2
23
0.02
24
0.02
25A, B
2
26
N
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
PRIORITY POLLUTANT METALS IN SHALLOW GROUNDWATER (mg/l)
---100— 100 mg/l contour
ESTIMATED FLOW DIRECTION
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington

Figure 9



Private Residences
INDUSTRIAL PARK
Office
South 196th ST.
Office
Residence
ENTRANCE
jogging path
Railroad
drain
parking lot
parking lot
Mill Creek
Reaction Pond
Western Processing Office Building
WESTERN PROCESSING
1127
329
309
1401
1127
520
2142
2998
128
390
568
2630
491
7606
1014
2820
816
1000
18,098
6667
18,748
1595
46,959
15,110
2464
1331
30,175
7128
38,135
16,678
4375
2463
18,348
5915
1452
3002
2414
14,615
17,240
21,744
7733
4802
110
1000
1209
754
407
SCALE IN FEET
0
66
132
198
264
330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
PRIORITY POLLUTANT METALS IN SOILS (ppm)
---1000--- 1000 ppm contour
30,175 TOTAL PP METAL IN SOIL
WESTERN PROCESSING
Kent, Washington

Figure 8

TABLE 10

DATA SUMMARY FOR SELECTED SOIL SAMPLES*

Carcinogen Code **	Parameter	WELL 6 - 3' SAMPLE	WELL 10 - 9' SAMPLE	WELL 11 - 12' SAMPLE	WELL 15 - 6' SAMPLE	WELL 16 - 3'SAMPLE	WELL 17 - 9' SAMPLE	WELL 17 - 12' SAMPLE	WELL 21 - 3' SAMPLE	WELL 22 - 9' SAMPLE	BERM #4	BERM #7	BERM #8	BERM #9	SURFACE SAMPLE #5	SURFACE SAMPLE #8	SURFACE SAMPLE #10	SURFACE SAMPLE #11	SURFACE SAMPLE #12
	Metals	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
0 0	Chromium	6,240	148,000	100,000	7,600,000	19,000	140,000	150,000	370,000	3,900,000	250,000	160,000	1,600,000	5,300,000	190,000	60,000	55,000	39,000	450,000
	Copper	26,000	280,000	79,000	5,100,000	150,000	66,000	45,000	500,000	335,000	180,000	250,000	590,000	890,000	580,000	220,000	880,000	200,000	560,000
0 0	Nickel	5,600	148,000	43,000	400,000	(13,000)	40,000	(20,000)	37,000	390,000	240,000	160,000	24,000	34,000	57,000	49,000	64,000	(18,000)	74,000
	Zinc	79,000	15,000	410,000	6,800,000	210,000	1,900,000	1,000,000	40,500,000	11,200,000	13,300,000	16 000,000	540,000	1,190,000	81,000,000	4,700,000	820,000	760,000	2,400,000
	Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	6,100	-	-	-	-
0 0	Arsenic	6,300	(2,200)	-	5,800	102,000	(4,400)	(2,000)	6,500	-	-	(2,400)	-	-	17,000	8,500	(2,000)	-	(4,300)
	Antimony	-	-	-	-	-	-	-	(6,700)	109,000	-	-	-	-	(6,000)	-	(9,500)	-	(4,500)
	Selenium	-	-	-	1,800	-	-	-	-	-	(1,000)	(900)	-	-	-	-	-	-	-
	Mercury	-	-	-	-	(30)	-	-	-	-	(40)	(60)	140	-	-	-	-	-	-
0 0	Cadmium	330	25,000	2,100	170,000	20,000	13,600	8,000	226,000	402,000	49,000	71,000	14,000	22,000	420,000	16,000	4,300	1,700	10,100
	Lead	20,000	18,000	280,000	1,500,000	84,000,000	87,000	39,000	6,400,000	24,800,000	1,090,000	5,100,000	230,000	170,000	17,000,000	870,000	5,900,000	190,000	1,300,000
	Miscellaneous																		
	Cyanide	10,100	-	22,000	55,600	-	-	(2,700)	-	179,000	-	-	-	-	-	-	(1,200)	13,000	15,000
	Acid Extractibles																		
	2,4, Dichlorophenol	-	5,200	-	-	-	-	-	1,900	-	-	-	-	-	-	-	-	-	-
	2,4, Dimethylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,000	-	1,070	-
	Pentachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,000	-	-	7,700
	Phenol	-	27,000	-	-	-	12,000	-	-	-	-	-	-	-	-	19,000	-	1,170	2,600
	Pesticides																		
	Aldrin	2,860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dieldrin	3,340	-	-	-	-	-	-	-	-	-	-	-	-	- 145	-	-	-	-
	Heptachlor	2,930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	G-BHC (Lindane)	-	-	-	-	-	-	-	-	-	-	-	-	-	- 34	-	-	-	-
0 0	PCB - 1016	-	-	-	3,160	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0 0	PCB - 1248	-	-	-	-	-	-	-	-	-	-	-	-	2,046	-	-	-	-	-
0 0	PCB - 1254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,300	2,912
0 0	PCB - 1260	-	-	-	1,710	-	-	-	-	-	-	-	2,030	-	-	-	-	-	-
	Base Neutrals																		
0	Acenaphthene	-	-	8,700	-	-	-	-	-	-	-	-	-	-	-	5,090,000	-	-	4,700
	1,2 Dichlorobenzene	-	-	-	565,000	-	-	-	-	-	-	-	-	-	-	-	-		-
0	Fluoranthene	-	-	7,300	-	-	-	-	7,700	-	-	-	-	-	-	15,000	59,000	234,000	16,000
0	Naphthalene	-	-	5,200	-	-	-	-	-	-	-	-	-	-	-	6,200,000	120,000	627,000	18,000
	Bis(2-Ethylhexyl) Phthalate	-	-	29,900	-	-	-	-	3,500	410,000	-	-	-	-	-	-	500,000	860,000	12,000
	Benzyl Butyl Phthalate	-	-	9,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Di-N-Butyl Phthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,600
0 0	Benzo(a)anthracene	-	-	-	-	-	-	-	4,000	-	-	-	-	-	-	884,000	-	76,000	4,400
0 0	Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200,000	-	-	-
0	Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130,000	-	-	-
0	Chrysene	-	-	-	-	-	-	-	2,500	-	-	-	-	-	-	1,210,000	-	85,000	5,100
0	Anthracene	-	-	-	-	-	-	-	1,600	-	-	-	-	-	-	-	-	-	-
0	Fluorene	-	-	16,900	-	-	-	-	-	-	-	-	-	-	-	8,600,000	-	62,000	5,100
0	Phenanthrene	-	-	62,400	-	-	-	-	7,000	-	-	-	-	-	-	20,000,000	190,000	763,000	-
0	Pyrene	-	-	11,000	-	-	-	-	7,400	-	-	-	-	-	-	16,000,000	65,000	283,000	18,000
	Volatiles																		
	Tetrachloroethylene	-	-	81	72,000	-	-	36	-	-	-	-	-	-	-	-	-	-	-
	Toluene	-	-	83	48,000	-	280,000	19,900	-	43	-	-	-	-	-	-	-	-	-
	Trichloroethylene	-	-	312	580,000	-	350,000	25,300	-	-	37	-	(21)	-	-	-	-	-	-
0 0	Benzene	-	-	-	-	-	-	199.5	-	-	-	-	-	-	-	-	-	-	-
	1,1,1-Trichloroethane	-	-	18.2	174,000	-	16,000	332.5	-	-	-	-	-	-	-	-	-	-	-
	1,1-Dichloroethane	-	-	-	-	-	-	17.3	-	-	-	-	-	-	-	-	-	-	-
0 0	Chloroform	-	-	-	-	-	18,000	505	-	-	-	-	-	-	-	-	-	-	-
	Ethylbenzene	-	-	143		-	29,000	1,596	-	28	-	-	-	13	-	-	-	-	-
	Methylene Chloride	-	22	51	30,000	116	49,000	1,197	21	30	25.52	-	-	-	14.9	51	-	63	-
	Fluorotrichlormethane	-	-	-	-	26	-	36	-	-	-	-	-	-	-	-	-	25	-
	Non-Priority Pollutant Hazardous Wastes																		
	2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,200	-	760	-
	4-methylphenol	-	-	-	-	-	5,600	-	-	-	-	-	-	-	-	64,000	-	3,000	4,600
	Acetone	-	1,000	-	-	-	-	17,000,000	-	-	-	-	-	-	-	-	-	-	-
	2-butanone	-	1,310	-	-	-	580,000	92,000	-	-	-	-	-	-	-	-	-	-	-
	O-xylene	-	-	-	-	-	24,000	1,100	-	42	-	-	-	-	-	-	-	-	-
	2-Methylnaphthalene	-	-	-	-	-	2,300	-	-	-	-	-	-	-	-	290,000	6,000	36,000	15,000
0	Dibenzofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250,000	-	-	4,800
	Total Contaminant	162,700	670,732	1,087,288	23,107,070	84,514,172	3,616,900	18,408,919	48,081,821	41,725,143	15,110,103	21,744,360	3,000,191	7,608,059	99,276,294	64,910,751	8,676,000	42 570.88	4,941,412
	% of Total Sample	0.02%	0.07%	0.11%	2.3%	8.45%	0.36%	1.84%	4.81%	4.17%	1.51%	2.17%	0.30%	0.76%	9.93%	6.49%	0.87%	0.43%	0.49%

* See Appendix for complete tabulation.

** 0 0 = Confirmed carcinogen (listed on NTP list of "88" - 1982)
0 = Highly suspect based on frequency of positive results in lab animals/mutagenic screening, etc.

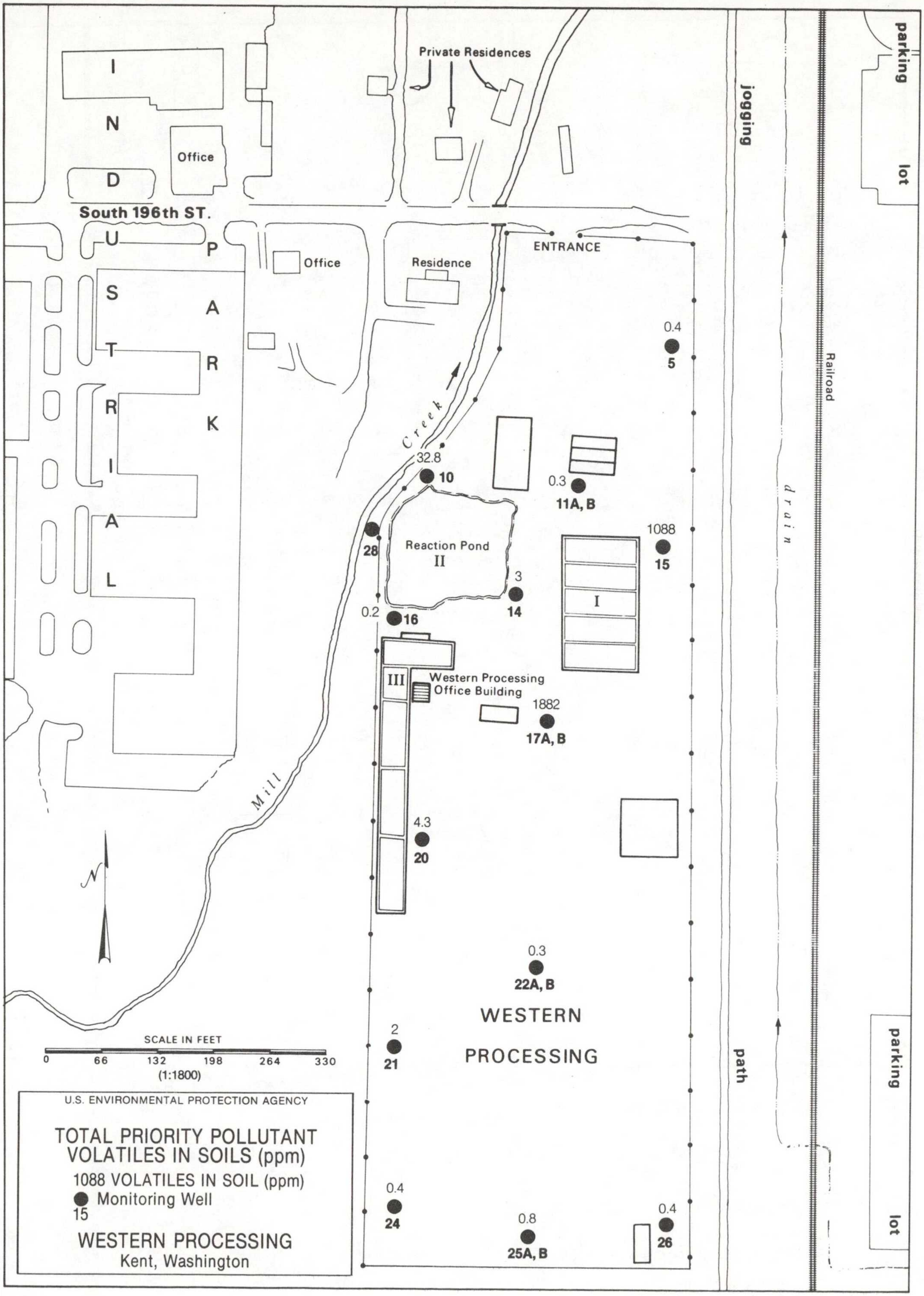
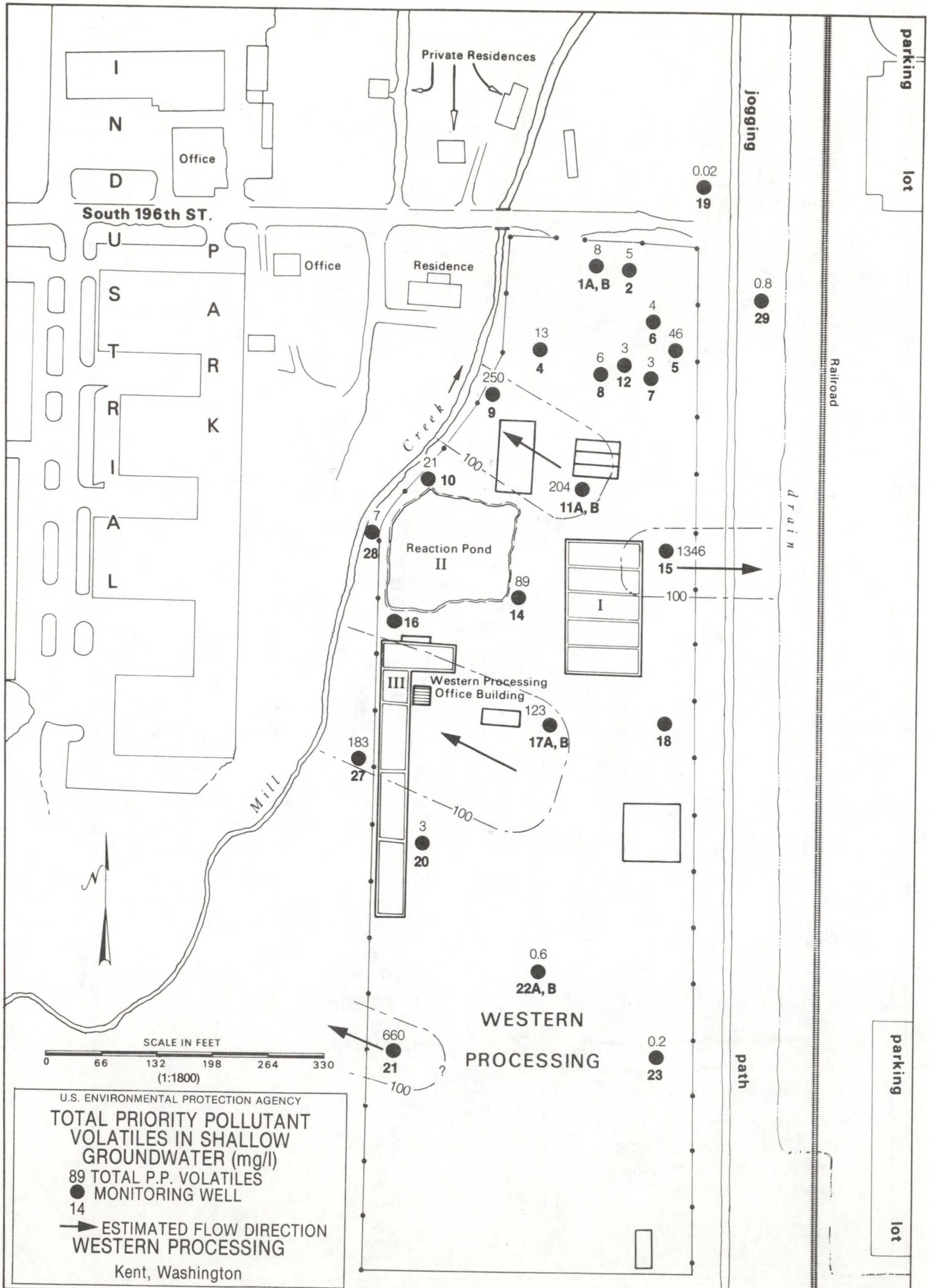

Private Residences
I N D U S T R I A L
P A R K
Office
South 196th ST.
Office
Residence
ENTRANCE
jogging
path
parking lot
parking lot
Railroad
drain
Mill Creek
32.8
10
0.3
11A, B
0.4
5
1088
15
28
Reaction Pond
II
3
14
0.2
16
I
III
Western Processing
Office Building
1882
17A, B
4.3
20
0.3
22A, B
WESTERN
PROCESSING
2
21
0.4
24
0.8
25A, B
0.4
26
N
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
TOTAL PRIORITY POLLUTANT
VOLATILES IN SOILS (ppm)
1088 VOLATILES IN SOIL (ppm)
15 Monitoring Well
WESTERN PROCESSING
Kent, Washington

Figure 10



Private Residences
INDUSTRIAL PARK
Office
South 196th ST.
Office
Residence
jogging path
parking lot
Railroad
drain
Creek
Mill
Reaction Pond II
I
III
Western Processing Office Building
WESTERN PROCESSING
0.02 19
8 1A, B
5 2
0.8 29
4 6
13 4
46 5
3 12
6 8
3 7
250 9
21 10
204 11A, B
7 28
1346 15
89 14
16
123 17A, B
18
183 27
3 20
0.6 22A, B
660 21
0.2 23
100
?
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
TOTAL PRIORITY POLLUTANT VOLATILES IN SHALLOW GROUNDWATER (mg/l)
89 TOTAL P.P. VOLATILES
MONITORING WELL
14
ESTIMATED FLOW DIRECTION
WESTERN PROCESSING
Kent, Washington

Figure 11

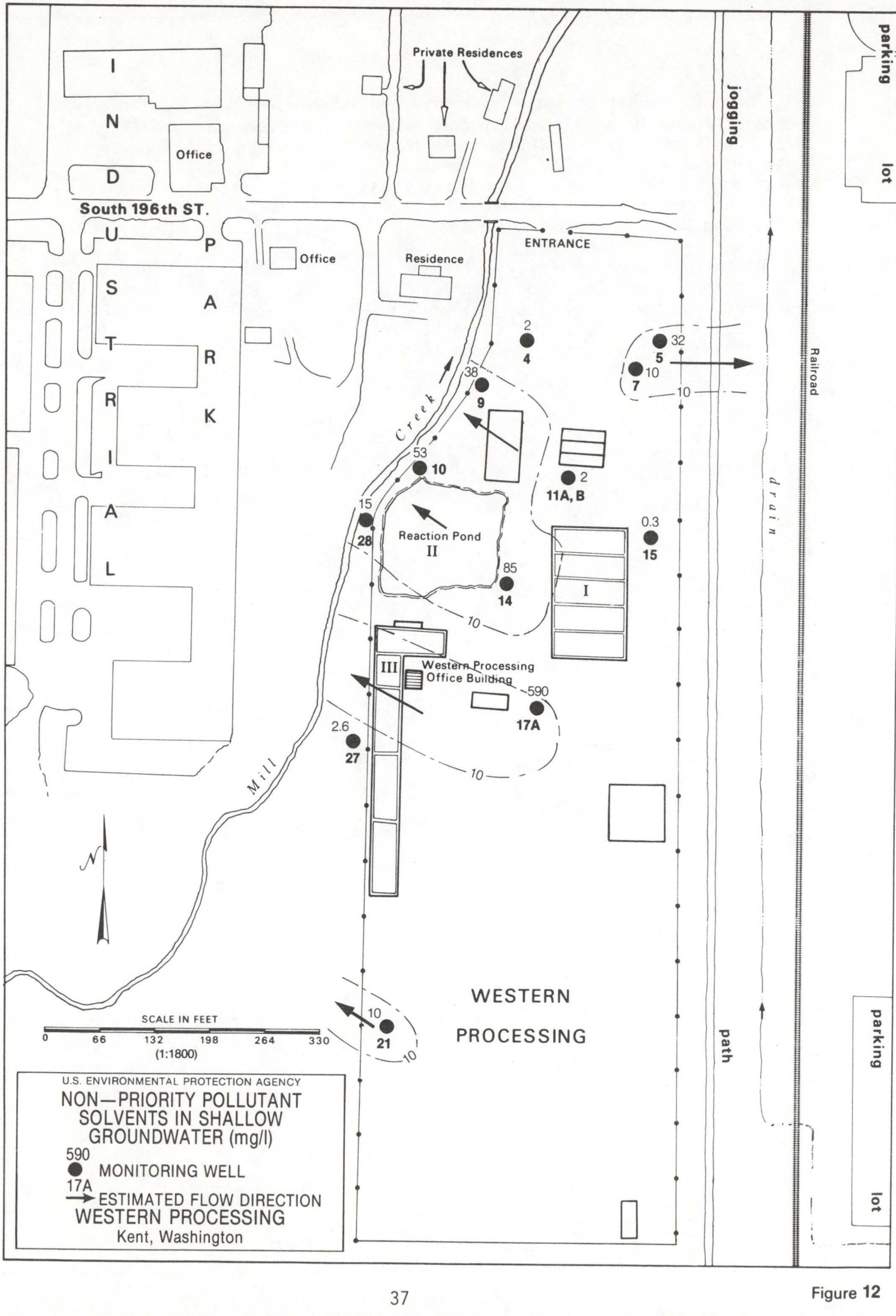

Private Residences
INDUSTRIAL
PARK
Office
South 196th ST.
Office
Residence
ENTRANCE
jogging
path
parking
lot
parking
lot
drain
Railroad
Creek
Mill
2
4
32
5
10
7
10
38
9
53
10
2
11A, B
15
28
Reaction Pond
II
0.3
15
85
14
I
10
III
Western Processing
Office Building
590
17A
2.6
27
10
WESTERN
PROCESSING
10
21
10
N
SCALE IN FEET
0
66
132
198
264
330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
NON—PRIORITY POLLUTANT
SOLVENTS IN SHALLOW
GROUNDWATER (mg/l)
590
17A
MONITORING WELL
ESTIMATED FLOW DIRECTION
WESTERN PROCESSING
Kent, Washington

Figure 12

The sum of the total priority pollutant acid extractibles (phenols) found in soil samples, does not yield a clear picture (Fig. 13). Levels of from 2 to 102 ppm are scattered over the site from the south end north to Well 10. The groundwater picture suggests a major source may be the lagoons along the west side of the site, near Well 27. Other sources may be the "Reaction Pond" and burial sites or spills near Wells 17, and 5 (Fig. 14).

Distribution of priority pollutant base/neutral extractibles in soils extends south from Well 11 almost to the south end of the site. Concentrations in the surface soils range from non-detected to 5.8% (Fig. 15), within this area. Evidently these compounds are relatively strongly adsorbed on soils, because only very low levels are found in groundwater.

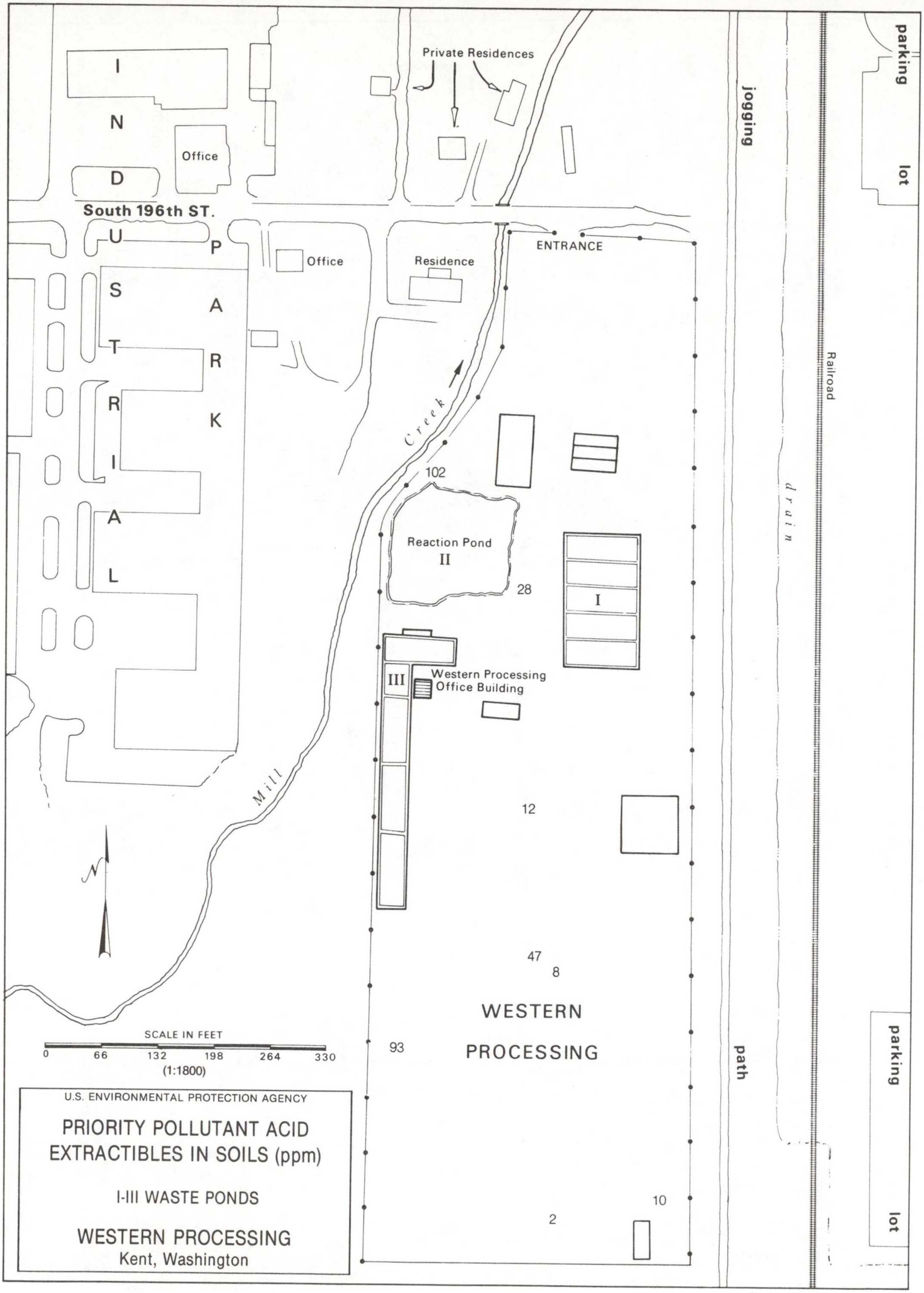
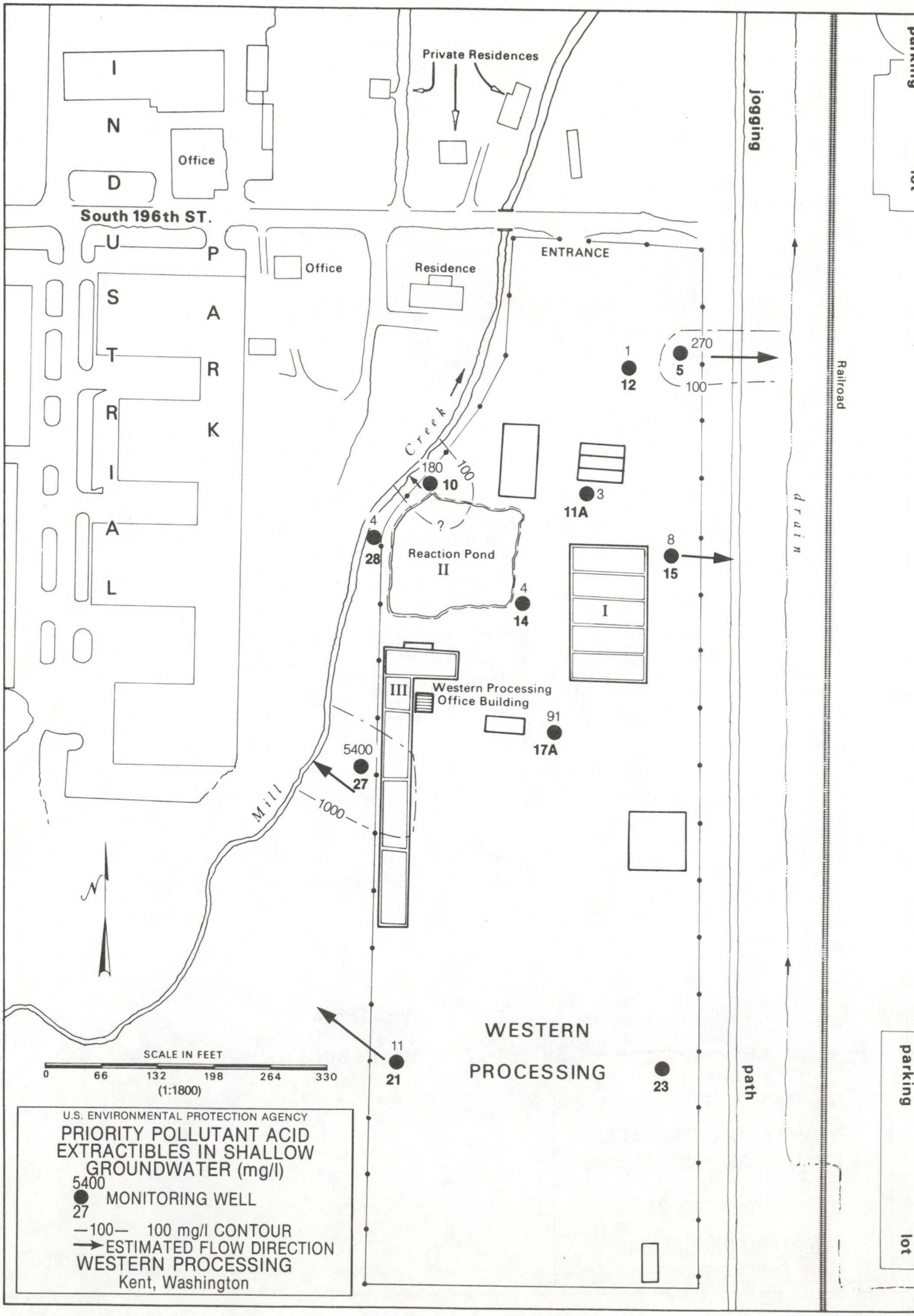
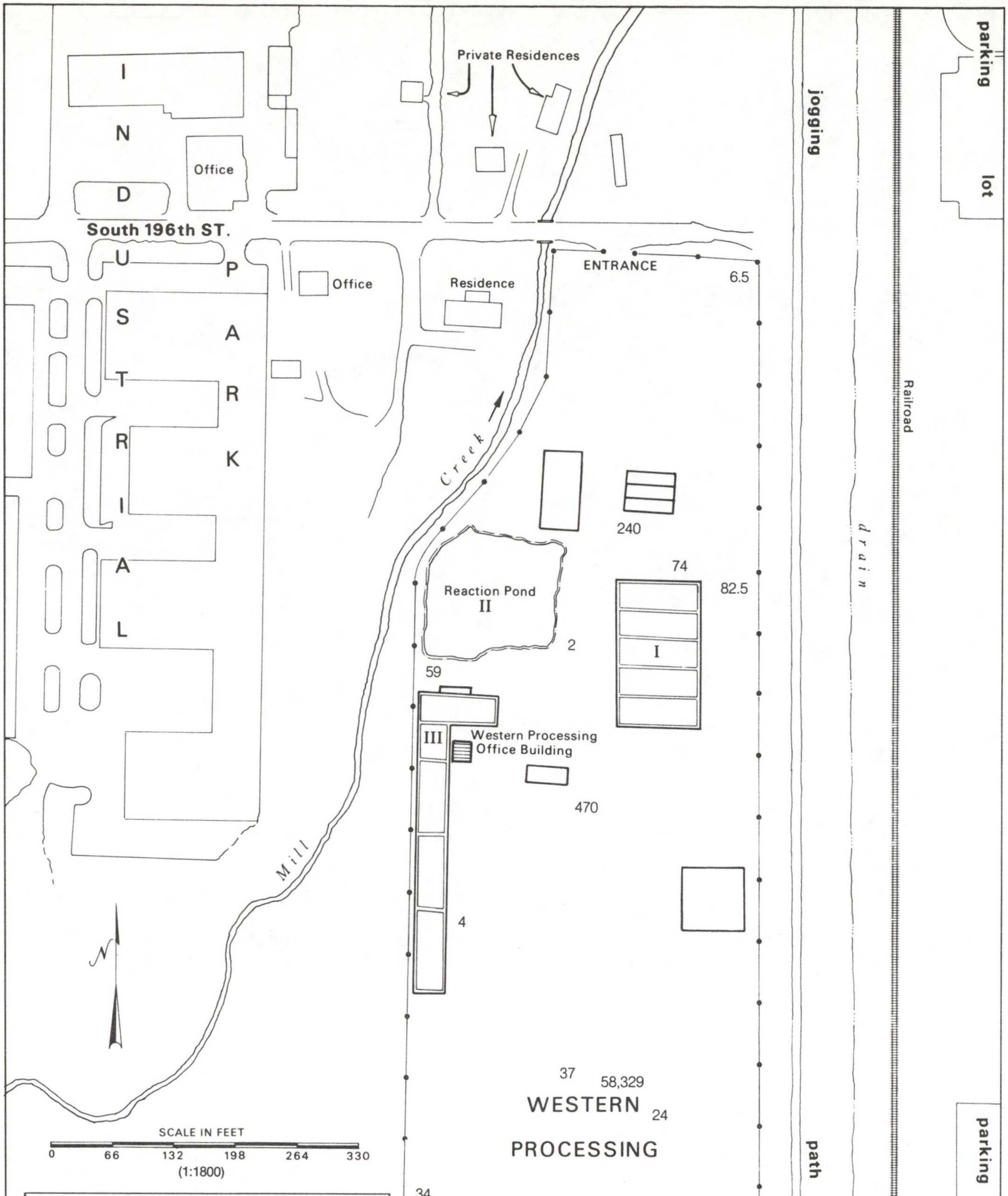

Private Residences
I
N
D
U
S
T
R
I
A
L
P
A
R
K
Office
South 196th ST.
Office
Residence
ENTRANCE
jogging
path
parking
lot
parking
lot
Railroad
drain
Creek
Mill
N
102
Reaction Pond
II
28
I
III
Western Processing
Office Building
12
47
8
WESTERN
PROCESSING
93
10
2
SCALE IN FEET
0
66
132
198
264
330
(1:1800)
U.S. ENVIRONMENTAL PROTECTION AGENCY
PRIORITY POLLUTANT ACID
EXTRACTIBLES IN SOILS (ppm)
I-III WASTE PONDS
WESTERN PROCESSING
Kent, Washington

Figure **13**



U.S. ENVIRONMENTAL PROTECTION AGENCY
PRIORITY POLLUTANT ACID EXTRACTIBLES IN SHALLOW GROUNDWATER (mg/l)
5400 MONITORING WELL 27
—100— 100 mg/l CONTOUR
ESTIMATED FLOW DIRECTION
WESTERN PROCESSING
Kent, Washington
SCALE IN FEET
0 66 132 198 264 330
(1:1800)
INDUSTRIAL PARK
Office
South 196th ST.
Private Residences
Residence
ENTRANCE
jogging path
parking lot
Railroad
drain
Mill Creek
Reaction Pond II
I
III
Western Processing Office Building
WESTERN PROCESSING
270
5
1
12
180
10
3
11A
4
28
8
15
4
14
91
17A
5400
27
11
21
23
100
1000
N

Figure 14



U.S. ENVIRONMENTAL PROTECTION AGENCY

TOTAL PRIORITY POLLUTANT BASE/NEUTRAL EXTRACTIBLES IN SOILS (ppm)

WESTERN PROCESSING
Kent, Washington

Figure **15**

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_____1979, Federal Register, vol. 44, 34408

_____1976, Federal Register, vol. 41, 52780

APPENDIX A PART I
129 PRIORITY POLLUTANTS LIST

129 PRIORITY POLLUTANTS*
(WITH CHEMICAL ABSTRACT SERVICE NUMBERS)

METALS

ANTIMONY	7440-36-0
ARSENIC	7440-38-2
BERYLLIUM	7440-41-7
CADMIUM	7440-43-9
CHROMIUM	7440-47-3
COPPER	7440-50-8
LEAD	7439-92-1
MERCURY	7439-97-6
NICKEL	7440-02-0
SELENIUM	7782-49-2
SILVER	7440-22-4
THALLIUM	7440-28-0
ZINC	7440-66-6

PESTICIDES

ALDRIN	309-00-2
ALPHA BHC	319-84-6
BETA BHC	319-85-7
GAMMA BHC	58-89-9
DELTA BHC	319-86-8
CHLORDANE	5103-71-9
4,4-DDD	72-54-8
4,4-DDE	72-55-9
4,4-DDT	50-29-3
DIELDRIN	60-57-1
ALPHA ENDOSULFAN	115-29-7
BETA ENDOSULFAN	115-29-7
ENDOSULFAN SULFATE	1031-07-8
ENDRIN	72-20-8
ENDRIN ALDEHYDE	7421-93-4
HEPTACHLOR	76-44-8
HEPTACHLOR EPOXIDE	1024-57-3
PCB 1016	12674-11-2
PCB 1221	111-042-82
PCB 1232	111-411-65
PCB 1242	534-692-19
PCB 1248	126-722-96
PCB 1254	110-916-91
PCB 1260	110-968-25
TOXAPHENE	8001-35-2

MISCELLANEOUS

CYANIDE	57-12-5

BASE-NEUTRAL EXTRACTIBLES

ACENAPHTHENE	83-32-9
ACENAPHTHYLENE	208-96-8
ANTHRACENE	120-12-7
BENZIDINE	92-87-5
BENZO(A)ANTHRACENE	56-55-3
BENZO(A)PYRENE	50-32-8
BENZO(B)FLUORANTHENE	205-99-2
BENZO(GHI)PERYLENE	191-24-2
BENZO(K)FLUORANTHENE	207-08-9
BIS(2-CHLOROETHOXYL) METHANE	111-91-1
BIS(2-CHLOROETHYL) ETHER	111-44-4
BIS(2-CHLOROISOPROPYL) ETHER	108-60-1
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7
4-BROMOPHENYL PHENYL ETHER	101-55-3
2-CHLORONAPHTHALENE	91-58-7
CHRYSENE	218-01-9
4-CHLOROPHENYL PHENYL ETHER	7005-72-3
1,2,5,6-DIBENZANTHRACENE	53-70-3
1,2-DICHLOROBENZENE	95-50-1
1,3-DICHLOROBENZENE	541-73-1
1,4-DICHLOROBENZENE	106-48-7
3,3-DICHLOROBENZIDINE	91-94-1
DIETHYL PHTHALATE	84-66-2
DIMETHYL PHTHALATE	131-11-3
DI-N-BUTYL PHTHALATE	84-74-2
2,4-DINITROTOLUENE	121-14-2
2,6-DINITROTOLUENE	606-20-2
DI-N-OCTYL PHTHALATE	117-81-7
1,2-DIPHENYLHYDRAZINE	122-66-7
FLUORANTHENE	206-44-0
FLUORENE	86-73-7
HEXACHLOROBENZENE	118-74-1
HEXACHLOROBUTADIENE	87-68-3
HEXACHLOROCYCLOPENTADIENE	77-47-4
HEXACHLOROETHANE	67-72-1
INDENO(1,2,3-CD)PYRENE	193-39-5
ISOPHORONE	78-59-1
NAPTHALENE	91-20-3
N-BUTYL BENZYL PHTHALATE	85-68-7
NITROBENZENE	98-95-3
N-NITROSODIMETHYLAMINE	62-75-9
N-NITROSODI-N-PROPYLAMINE	621-64-7
N-NITROSODIPHENYLAMINE	86-30-6
PHENANTHRENE	85-01-8
PYRENE	129-00-0
TCDD	1746-01-6
1,2,4-TRICHLOROBENZENE	120-82-1

ACID EXTRACTIBLES

2-CHLOROPHENOL	95-57-8
2,4-DICHLOROPHENOL	120-83-2
2,4-DIMETHYLPHENOL	105-67-9
4,6-DINITRO-O-CRESOL	534-52-1
2,4-DINITROPHENOL	51-28-5
2-NITROPHENOL	88-75-5
4-NITROPHENOL	100-07-7
P-CHLORO-M-CRESOL	59-50-7
PENTACHLOROPHENOL	87-86-5
PHENOL	108-95-2
2,4,6-TRICHLOROPHENOL	88-06-02

VOLATILES

ACROLEIN	107-02-8
ACRYLONITRILE	107-13-1
BENZENE	71-43-2
BIS(CHLOROMETHYL) ETHER	542-88-1
BROMODICHLOROMETHANE	15-27-4
BROMOFORM	75-25-2
CARBON TETRACHLORIDE	56-23-5
CHLOROBENZENE	108-90-7
CHLOROETHANE	75-00-3
2-CHLOROETHYL VINYL ETHER	110-75-8
CHLOROFORM	67-66-3
CIS-1,3-DICHLOROPROPENE	542-75-6
DIBROMOCHLOROMETHANE	124-48-1
DICHLOROFLUOROMETHANE	75-71-8
1,1-DICHLOROETHANE	75-34-3
1,2-DICHLOROETHANE	107-06-2
1,1-DICHLOROETHYLENE	75-35-4
1,2-DICHLOROPROPANE	78-87-5
ETHYLBENZENE	100-41-4
METHYL BROMIDE	74-83-9
METHYL CHLORIDE	74-87-3
METHYLENE CHLORIDE	75-09-2
1,1,2,2-TETRACHLOROETHANE	79-34-5
TETRACHLOROETHYLENE	127-18-4
1,2-TRANS-DICHLOROETHYLENE	540-59-0
TRANS-1,3-DICHLOROPROPENE	10061-02-6
1,1,2-TRICHLOROETHANE	79-00-5
TRICHLOROETHYLENE	79-01-6
TRICHLOROFLUOROMETHANE	75-69-4
1,1,1-TRICHLOROETHANE	71-55-6
TOLUENE	108-88-3
VINYL CHLORIDE	75-01-4

*LIST COMPILED BY EPA

APPENDIX B PART I

SUMMARY OF ANALYTICAL RESULTS FOR PRIORITY POLLUTANTS

INORGANICS -- METALS

WESTERN PROCESSING INVESTIGATION
KENT, WASHINGTON

M = COMPOUND PRESENT BUT BELOW THE MINIMUM QUANTIFIABLE LIMIT
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KK = MULTIPLY THE VALUE BY 1,000,000
* NON-PRIORITY POLLUTANT

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	AL*	CR	BA*	BE	CO*	CU	FE*	NI
	01	3	S	MJ9301	821007	0900	840	1 M	10 M	0.5 M	5 M	5 M	400	4 M
	01	6	S	MJ9302	821007	0915	840	36	10 M	0.5 M	5 M	130	180	14
	01	9	S	MJ9303	821007	0930	2700	11.0	24	0.5 M	5 M	150	730	52
	01	12	S	MJ9304	821007	0945	1800	14	33	0.5 M	5 M	20	1900	15
	01	SHAL	W	MJ9312	821108	1330	240	70				120		110
	01	DEEP	W	MJ9311	821108	1400							160	
	02	3	S	MJ9313	821014	1025	770	10	104			210	2200	55
	02	6	S	MJ9314	821014	1030	1200		17			7.0	990	
	02	9	S	MJ9315	821014	1035	800	92				44	1600	4.8
	02	12	S	MJ9316	821014	1040	1200	21				83	750	25
	02	15	S	MJ9317	821014	1045	1700	27	28			79	1220	14
	C2	SHAL	W	MJ9318	821102	1100							140	200
	03	3	S	MJ9319	821014	1155	1200	23	76			210	4600	72
	03	6	S	MJ9320	821014	1205	2400	370	100			380	4400	120
	03	9	S	MJ9321	821014	1210	1600	93	84			148	7500	71
	03	SHAL	W	MJ9324	821115	1200		2200		3.0		3800		3600
	04	3	S	MJ9325	821018	1415	1800	12	42	0.5 M	5 M	15	2300	4 M
	04	6	S	MJ9326	821018	1430	2700	1.5	27	0.5 M	5 M	17	3800	4 M
	04	9	S	MJ9327	821018	1435	2300	16	23	0.5 M	5 M	46	2900	4 M
	04	SHAL	W	MJ9330	821102	1500							540	160
	05	3	S	MJ9331	821018	1330	1500	38	147	0.5 M	5 M	140	4900	4 M
	05	6	S	MJ9332	821018	1330	2700	400	18	0.5 M	5 M	600	4300	133
	05	9	S	MJ9333	821018	1330	860	70	31	0.5 M	5 M	250	3500	74
	05	12	S	MJ9334	821018	1330	5300	1300	28	0.5 M	5 M	570	8000	270
	05	SHAL	W	MJ9336	821103	1400	2300	400			2300	13 K	1900	25 K
	06	3	S	MJ9337	821018	1035	2100	6.24	10 M	0.5 M	5 M	26	4100	5.6
	06	6	S	MJ9338	821018	1045	2300	130	76	0.5 M	5 M	100	4900	9.7
	06	9	S	MJ9339	821018	1050	2200	580	24	0.5 M	5 M	198	3100	21
	06	12	S	MJ9340	821018	1100	2100	69	36	0.5 M	5 M	76	2600	32
	06	SHAL	W	MJ9342	821103	1100		40				51	340	1100
	07	3	S	MJ9343	821014	1415	2400	12	27			28	4500	4.8
	07	6	S	MJ9344	821014	1425	2200	64	37			350	1110	27
	07	9	S	MJ9345	821014	1430	2100	150				160	1900	18
	07	SHAL	W	MJ9348	821103	1430	5800	260				390	920	600
	08	3	S	MJ9349	821025	1410	4400	24	32			40	8500	11.2
	08	6	S	MJ9350	821025	1425	4700	1170	49			170	8500	
	08	9	S	MJ9051	821025	1440	2200	192				87	1700	
	08	SHAL	W	MJ9054	821108	1500	2300	26			150	340	120	570
	09	3	S	MJ9055	821019	1020	640	25				25	45	
	09	6	S	MJ9056	821019	1030	1180	15				50	380	41
	09	9	S	MJ9057	821019	1040	2100	6.6	30			21	2440	22
	09	12	S	MJ9058	821019	1045	870	1.5					410	12.3
	09	SHAL	W	MJ9060	821103	1500	380	13			72		245 K	140
	10	3	S	MJ9061	821019	1235	2900	660	23			210	2400	41
	10	6	S	MJ9062	821019	1250	2000	42				220	550	270
	10	9	S	MJ9063	821019	1310	1800	148				280	2300	148

UNITS: LIQUID - UG/L (PPB) DISSOLVED
SOIL - MG/KG (PPM) DRY WEIGHT BASIS FOR ALL QUANTIFIABLE VALUES

INORGANICS -- METALS

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KENT, WASHINGTON

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* NON-PRIORITY POLLUTANT

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	AL*	CR	BA*	BE	CO*	CU	FE*	NI
							METALS PARAMETERS							
	10	12	S	MJ9064	821019	1340	4700	850				1240	2900	320
	10	15	S	MJ9065	821019	1405	1700	270	16			7.2	2700	140
	10	SHAL	W	MJ9066	821104	1000	430 K	17 K			5500	6300	480 K	280 K
	11	3	S	MJ9067	821008	1100	540	140	10 M	0.5 M	5 M	19	330	6.2
	11	6	S	MJ9068	821008	1115	1320	340	17	0.5 M	5 M	105	1300	17
	11	8	S	MJ9069	821008	1130	970	220	10 M	0.5 M	5 M	80	770	12.1
	11	10	S	MJ9070	821008	1145	3300	36	17	0.5 M	5 M	460	1000	74
	11	12	S	MJ9071	821008	1200	570	100	36	0.5 M	5 M	79	1800	43
	11	SHAL	W	MJ9072	821109	1030	510 K	1400			2400	4200	410 K	77 K
	11	DEEP	W	MJ9078	821109	1100	420 K	770			2200	3600	425 K	69 K
	12	3	S	MJ9079	821025	1130	4400	15	41			77	5800	
	12	6	S	MJ9080	821025	1140	1100	300	21			65	2200	
	12	9	S	MJ9081	821025	1200	3900	220	45			124	3400	
	12	12	S	MJ9082	821025	1230	2800	48	36			55	5500	25
	12	15	S	MJ9083	821025	1240	3200	79	38			46	5000	9.7
	12	SHAL	W	MJ9084	821103	1200	1900	57				120	150	620
	13	3	S	MJ9085	821027	1310	1800	48	41			123	1800	11.2
	13	6	S	MJ9086	821027	1325	1400	7.5	17			14	1600	
	13	9	S	MJ9087	821027	1400	2600	3.2	45	44			6400	
	13	SHAL	W	MJ9090	821101	1500							130	390
	14	3	S	MJ9091	821020	0945	1700	190	71		7.6	137	5000	150
	14	6	S	MJ9092	821020	1020	2000	210	27			60	1600	23
	14	9	S	MJ9093	821020	1040	1300	130				23	1200	15
	14	12	S	MJ9094	821020	1100	1700	200				110	2200	49
	14	15	S	MJ9095	821020	1145	2300	360	19			130	2200	70
	14	SHAL	W	MJ9096	821104	1400	66 K	65 K			1800	4300	39 K	76 K
	15	3	S	MJ9097	821025	1500	1200	110	130		8.6	3700	8600	170
	15	6	S	MJ9098	821025	1510	19.5K	7600	180		10.1	5100	10.4K	400
	15	9	S	MJ9099	821025	1520	17.9K	6500	150		12.4	5700	9800	500
	15	SHAL	W	MJ9102	821112	1230	930	170				3400	160	360
	16	3	S	MJ9103	821020	1310	216	19				150	380	13
	16	6	S	MJ9104	821020	1325	2400	600	20			260	1900	76
	16	9	S	MJ9105	821020	1345	2100	240				59	1700	41
	16	12	S	MJ9106	821020	1405	1800	200	26			72	2900	32
	16	15	S	MJ9107	821020	1430	2600	620				24	1200	7.8
	16	SHAL	W	MJ9108	821104	1100	6300	600			310	360	850	2500
	17	3	S	MJ9109	821011	1100	1900	150				52	3500	20
	17	6	S	MJ9110	821011	1120	3300	250	15			112	5200	46
	17	9	S	MJ9111	821011	1150	3700	140	21			66	7000	40
	17	12	S	MJ9112	821011	1230	2200	150				45	3900	20
	17	15	S	MJ9113	821011	1300	2600	220	33			48	3600	29
	17	18	S	MJ9114	821013	1330	2800	450	33			77	4500	31
	17	21	S	MJ9116	821013	1350	4700	370	25			64	5500	29
	17	24	S	MJ9117	821013	1400	2900	58	20			33	5100	12.0
	17	27	S	MJ9118	821013	1405	2500	16.1				14	4900	
	17	30	S	MJ9119	821013	1420	2800	37	35			23	5100	7.6

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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* NON-PRIORITY POLLUTANT

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	AL*	CR	BA*	BE	CO*	CU	FE*	NI
							METALS PARAMETERS							
	17	SHAL	W	MJ8042	821110	1000	330 K	32 K			1400	7200	410 K	26 K
	17	DEEP	W	MJ9120	821110	1100	65 K	680			490	240	180 K	3200
	18	3	S	MJ9121	821026	1000	4800	320	48			56	3400	6.7
	18	6	S	MJ9122	821026	1020	5100	980	25			325	6400	39
	18	9	S	MJ9123	821026	1030	3600	140	47			221	3000	20
	18	SHAL	W	MJ9126	821112	1130	4000				80		6800	530
	19	3	S	MJ9127	821027	1000	2300	5.8					1340	13.4
	19	6	S	MJ9128	821027	1015	1700	20	19				1800	8.5
	19	9	S	MJ9129	821027	1045	1300	5.1	19			10.8	1700	
	19	12	S	MJ9130	821027	1120	980	10.7				15	960	
	19	SHAL	W	MJ9132	821101	1600	12 K	15			120		190	860
	20	3	S	MJ9133	821021	0940	260	97	22			87	1300	8.7
	20	6	S	MJ9134	821021	1010	2400	150				85	700	9.2
	20	9	S	MJ9135	821021	1030	1500	30	24			9.2	900	15
	20	12	S	MJ9136	821021	1055	1500	7.9	25			11.8	2600	26
	20	15	S	MJ9137	821021	1120	1600					9.6	2500	
	20	SHAL	W	MJ9138	821104	1330	11 K	52				410	57 K	470
	21	3	S	MJ9139	821021	1400	1800	370	56			500	4300	37
	21	6	S	MJ9140	821021	1445	4500	570	50			450	3000	1900
	21	9	S	MJ9141	821021	1510	4600	340	48			388	3000	31
	21	12	S	MJ9142	821021	1535	2500	54				45	1800	17
	21	15	S	MJ9143	821021	1545	1500	31	18			25	1900	7.8
	21	SHAL	W	MJ9144	821105	1030	480	160					65 K	320
	22	3	S	MJ9145	821012	0900	1050	1150	25			103	5600	500
	22	6	S	MJ9146	821012	0930	2600	2400	100			149	8200	219
	22	9	S	MJ9147	821012	1000	5300	3900	148			335	13.4K	390
	22	12	S	MJ9148	821012	1030	5000	560	50			122	6000	87
	22	15	S	MJ9149	821012	1100							38	
	22	SHAL	W	MJ9150	821110	1200	700	78	150				4000	130
	22	DEEP	W	MJ9156	821110	1300	850	22			100		27 K	280
	23	3	S	MJ9157	821026	1130	2500	230	27			60	4800	63
	23	6	S	MJ9158	821026	1150	4000	510	39			63	7800	31
	23	9	S	MJ9159	821026	1200	4800	550	38			60	10.5K	32
	23	SHAL	W	MJ9162	821026	1430	3800	400	150			51	40 K	64
	24	3	S	MJ9163	821022	0950	1500	6.7	19			34	2200	56
	24	6	S	MJ9164	821022	1000	2000	5.2	20			18	2000	
	24	9	S	MJ9165	821022	1020	1400	2.7				20	1400	5.8
	24	12	S	MJ9166	821022	1045	3100	4.2	21			24	6000	7.7
	24	15	S	MJ9167	821022	1055	1180						1800	
	24	SHAL	W	MJ9168	821105	1130	3500						4100	
	25	3	S	MJ9169	821026	1340	2200	5.2	17				2000	
	25	6	S	MJ9170	821026	1355	6100	22	47			21	7200	6.6
	25	9	S	MJ9171	821026	1440	5700	13.5	45			8.8	8000	7.4
	25	SHAL	W	MJ9174	821111	1130							1700	
	25	DEEP	W	MJ9180	821110	1500	845						2700	
	26	3	S	MJ9181	821026	1425	3900	3.0	30			12	4500	

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KENT, WASHINGTON

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* NON-PRIORITY POLLUTANT

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	AL*	CR	BA*	BE	CO*	CU	FE*	NI
	26	6	S	MJ9182	821026	1440	6200	5.4	61			25	10.2K	
	26	9	S	MJ9183	821026	1450	5000	8.4	49			24	9200	5.5
	26	SHAL	W	MJ9186	821111	1230			340		80		3200	49
	27	SHAL	W	MJ8046	821116	1100	12 K				360		200	6400
	28	SHAL	W	MJ8047	821116	1230	38 K	6100	180		3600	590	54 K	77 K
	29	SHAL	W	MJ8045	821115	1300	900	15			400		410 K	960
	30	SHAL	W	MJ8033	821220	1100							4600	210
BERM #1		1	S	MJ9187	821025	1000	1600	54	130		8.5	190	7500	140
BERM #2		1	S	MJ9188	821025	1015	1300	102	150		8.8	210	7800	140
BERM #3		1	S	MJ9189	821025	1030	990	110	66		10	140	10 K	200
BERM #4		1	S	MJ9190	821025	1045	1900	250	28		12	180	18.9K	240
BERM #5		1	S	MJ9191	821025	1100	1400	98	46		9.1	570	10.4K	180
BERM #6		1	S	MJ9192	821025	1115	850	36	88		16	105	10.4K	290
BERM #7		1	S	MJ9193	821025	1130	4700	160	39		12	250	15.3K	160
BERM #8		1	S	MJ9194	821025	1145	3000	1600	37			590	8400	24
BERM #9		1	S	MJ9195	821025	1200	2600	5300	31			890	8900	34
BLANK			S	MJ9197	821008		20 M	1 M	10 M	0.5 M	5 M	5 M	5 M	4 M
PEA GRAVEL			S	MJ9198	821012		180						160	
SS#2		0	S	MJ9328	821118	0952	1300	1100	100			320	3700	78
SS#3		0	S	MJ9329	821118	0956	1000	78				70	1600	21
SS#4		0	S	MJ9335	821118	1002	430	68				84	1300	17
SS#5		0	S	MJ9341	621118	1008	710	190	140			580	9200	57
SS#6		0	S	MJ9346	821118	1027	830	210	84			340	2600	58
SS#7		0	S	MJ9347	821118	1036	850	46	49			240	3300	49
SS#8		0	S	MJ9059	821118	1041	1000	60	25			220	5000	49
SS#9		0	S	MJ9073	821118	1044	550	31	37			86	3700	740
SS#10		0	S	MJ9074	821118	1048	810	55	25			880	3000	64
SS#11		0	S	MJ9075	821118	1050	200	39				200	260	18
SS#12		0	S	MJ9076	821118	1053	1100	450	71		7.1	560	3700	74
TRANSFER BLANK			W	MJ8043	821101	1100							120	
TRANSPORT BLANK			W	MJ8044	821101	1100							160	

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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INORGANICS -- METALS

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KENT, WASHINGTON

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	MN*	ZN	B*	V*	AG	AS	SB	SE
							METALS PARAMETERS							
	01	3	S	MJ9301	821007	0900	2.9	130	29	20 M	1 M	1 M	2 M	0.2 M
	01	6	S	MJ9302	821007	0915	5.6	160	29	20 M	1 M	1 M	2 M	0.2 M
	01	9	S	MJ9303	821007	0930	9.4	381	35	20 M	1 M	3.7	2 M	0.2 M
	01	12	S	MJ9304	821007	0945	6.4	150	44	20 M	1 M	1 M	2 M	0.2 M
	01	SHAL	W	MJ9312	821108	1330	1100	1000	2900					
	01	DEEP	W	MJ9311	821108	1400	1300	48	860					
	02	3	S	MJ9313	821014	1025	610	260						
	02	6	S	MJ9314	821014	1030	36	88				1.3		
	02	9	S	MJ9315	821014	1035	42	71						
	02	12	S	MJ9316	821014	1040	64	200						
	02	15	S	MJ9317	821014	1045	130	99				1.6		
	02	SHAL	W	MJ9318	821102	1100	7600	110	5700					
	03	3	S	MJ9319	821014	1155	670	420						
	03	6	S	MJ9320	821014	1205	1800	1500	17			2.1		
	03	9	S	MJ9321	821014	1210	1400	440	14			2.2		
	03	SHAL	W	MJ9324	821115	1200		5900			12	600	108	
	04	3	S	MJ9325	821018	1415	70	75	10 M	20 M	1 M	2.8	2 M	0.2 M
	04	6	S	MJ9326	821018	1430	146	24	10 M	20 M	1 M	4.4	2 M	0.2 M
	04	9	S	MJ9327	821018	1435	112	46	10 M	20 M	1 M	2.5	2 M	0.2 M
	04	SHAL	W	MJ9330	821102	1500	6500	38	4000					
	05	3	S	MJ9331	821018	1330	2800	510	10 M	20 M	1 M	1.7	2 M	0.2 M
	05	6	S	MJ9332	821018	1330	1300	1300	13	20 M	1 M	2.7	2 M	0.2 M
	05	9	S	MJ9333	821018	1330	300	350	10 M	20 M	1 M	1 M	2 M	0.2 M
	05	12	S	MJ9334	821018	1330	700	2000	15	20 M	1 M	4.8	2 M	0.2 M
	05	SHAL	W	MJ9336	821103	1400	54	650	11 K					
	06	3	S	MJ9337	821018	1035	150	79	10 M	20 M	1 M	6.3	2 M	0.2 M
	06	6	S	MJ9338	821018	1045	153	131	10 M	20 M	1 M	3.9	2 M	0.2 M
	06	9	S	MJ9339	821018	1050	57	176	10 M	20 M	1 M	2.8	2 M	0.2 M
	06	12	S	MJ9340	821018	1100	114	262	10 M	20 M	1 M	2.2	2 M	0.2 M
	06	SHAL	W	MJ9342	621103	1100	2800	190	10 K					
	07	3	S	MJ9343	821014	1415	220	57				5.2		
	07	6	S	MJ9344	821014	1425	90	330				2.2		
	07	9	S	MJ9345	821014	1430	66	210				1.9		
	07	SHAL	W	MJ9348	821103	1430	3200	700	6400					
	08	3	S	MJ9349	821025	1410	260	640	69					
	08	6	S	MJ9350	821025	1425	50	36	170					
	08	9	S	MJ9051	821025	1440	33	40	140					
	08	SHAL	W	MJ9054	821108	1500	15 K	2800	3400					
	09	3	S	MJ9055	821019	1020		41			1.4			
	09	6	S	MJ9056	821019	1030	38	390						
	09	9	S	MJ9057	821019	1040	62	280	16			2.2		
	09	12	S	MJ9058	821019	1045	128	190	17					
	09	SHAL	W	MJ9060	821103	1500	35 K	1500	18 K					
	10	3	S	MJ9061	821019	1235	45	610	16			3.4		
	10	6	S	MJ9062	821019	1250	122	2600	74			1.9		
	10	9	S	MJ9063	821019	1310	71	1500	62			2.2		

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	METALS PARAMETERS MN*	ZN	B*	V*	AG	AS	SB	SE
	10	12	S	MJ9064	821019	1340	135	3100	145			6.8		
	10	15	S	MJ9065	821019	1405	60	1400	65			1.8		
	10	SHAL	W	MJ9066	821104	1000	290 K	400 K	110 K			21		
	11	3	S	MJ9067	821008	1100	1.5 M	72	80	20 M	1 M	1 M	2 M	0.2 M
	11	6	S	MJ9068	821008	1115	3.1	180	41	20 M	1 M	1 M	2 M	0.2 M
	11	8	S	MJ9069	821008	1130	3.6	150	37	20 M	1 M	1 M	2 M	0.2 M
	11	10	S	MJ9070	821008	1145	8.5	1200	52	20 M	1 M	5.6	2 M	0.2 M
	11	12	S	MJ9071	821008	1200	26	410	37	20 M	1 M	1 M	2 M	0.2 M
	11	SHAL	W	MJ9072	821109	1030	475 K	350 K	14 K			22		
	11	DEEP	W	MJ9078	821109	1100	480 K	375 K	12 K			20		
	12	3	S	MJ9079	821025	1130	250	340	120					
	12	6	S	MJ9080	821025	1140	10.6	93	96					
	12	9	S	MJ9081	821025	1200	91	117	130					
	12	12	S	MJ9082	821025	1230	210	180	140					
	12	15	S	MJ9083	821025	1240	104	91	140					
	12	SHAL	W	MJ9084	821103	1200	4000	8400	6000					
	13	3	S	MJ9085	821027	1310	37	360	117					
	13	6	S	MJ9086	821027	1325	36	96	93					
	13	9	S	MJ9087	821027	1400	160	61	94					
	13	SHAL	W	MJ9090	821101	1500	960		1300					
	14	3	S	MJ9091	821020	0945	2000	1700	80			2.2		
	14	6	S	MJ9092	821020	1020	240	700	16			2.4		
	14	9	S	MJ9093	821020	1040	150	440	16			1.3		
	14	12	S	MJ9094	821020	1100	96	730	17			1.6		
	14	15	S	MJ9095	821020	1145	98	1040	15			3.0		
	14	SHAL	W	MJ9096	821104	1400	27 K	380 K	29 K			18		
	15	3	S	MJ9097	821025	1500	1390	3800	115					
	15	6	S	MJ9098	821025	1510	880	6800	210	76		5.8		1.8
	15	9	S	MJ9099	821025	1520	1260	9100	240	76		5.4		1.4
	15	SHAL	W	MJ9102	821112	1230	530	260	10 K					
	16	3	S	MJ9103	821020	1310	13	210	12			102		
	16	6	S	MJ9104	821020	1325	87	130	29			15	28	
	16	9	S	MJ9105	821020	1345	300	240	70			3.0		
	16	12	S	MJ9106	821020	1405	96	234	56			3.1	3.4	
	16	15	S	MJ9107	821020	1430	21	105	27			3.7		
	16	SHAL	W	MJ9108	821104	1100	21 K	64 K	33 K			11		
	17	3	S	MJ9109	821011	1100	110	1100	18					
	17	6	S	MJ9110	821011	1120	111	1600	52					
	17	9	S	MJ9111	821011	1150	113	1900	40			4.4		
	17	12	S	MJ9112	821011	1230	57	1000	16			2.0		
	17	15	S	MJ9113	821011	1300	66	1190	24					
	17	18	S	MJ9114	821013	1330	87	1370	26					
	17	21	S	MJ9116	821013	1350	121	1030	23					
	17	24	S	MJ9117	821013	1400	162	400						
	17	27	S	MJ9118	821013	1405	109	169						
	17	30	S	MJ9119	821013	1420	131	280						

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	ITR NUM	DATE	TIME	MN*	ZN	B*	V*	AG	AS	SB	SE
							METALS PARAMETERS							
	17	SHAL	W	MJ8042	821110	1000	410 K	360 K	30 K			32		
	17	DEEP	W	MJ9120	821110	1100	210 K	160 K	8400					
	18	3	S	MJ9121	821026	1000	85	3300	110					
	18	6	S	MJ9122	821026	1020	62	7000	150					
	18	9	S	MJ9123	821026	1030	59	2700	140					
	18	SHAL	W	MJ9126	821112	1130	6700	510 K	3300					
	19	3	S	MJ9127	821027	1000	76	1200	84					
	19	6	S	MJ9128	821027	1015	77	1900	72					
	19	9	S	MJ9129	821027	1045	146	430	60					
	19	12	S	MJ9130	821027	1120	62	860	58					
	19	SHAL	W	MJ9132	821101	1600	10 K	100 K	4400					
	20	3	S	MJ9133	821021	0940	330	13.3K						
	20	6	S	MJ9134	821021	1010	61	1750				3.8		
	20	9	S	MJ9135	821021	1030	38	1300				1.3		
	20	12	S	MJ9136	821021	1055	92	2100				1.8		
	20	15	S	MJ9137	821021	1120	78	360				1.4		
	20	SHAL	W	MJ9138	821104	1330	21 K	11 K	2600					
	21	3	S	MJ9139	821021	1400	1550	40.5K	82			6.5	6.7	
	21	6	S	MJ9140	821021	1445	560	10.9K	30			2.6		
	21	9	S	MJ9141	821021	1510	340	6500	22			7.6		
	21	12	S	MJ9142	821021	1535	100	460				2.9		
	21	15	S	MJ9143	821021	1545	64	312				1.5		
	21	SHAL	W	MJ9144	821105	1030	5600	390	1200					
	22	3	S	MJ9145	821012	0900	870	2300				19	130	
	22	6	S	MJ9146	821012	0930	1390	5700	38			13.1	69	30.5
	22	9	S	MJ9147	821012	1000	1620	11.2K	33				109	
	22	12	S	MJ9148	821012	1030	910	2900					11.3	
	22	15	S	MJ9149	821012	1100		350						
	22	SHAL	W	MJ9150	821110	1200	5300	2000	1800					
	22	DEEP	W	MJ9156	821110	1300	45 K	30 K	2600			32	26	4.1
	23	3	S	MJ9157	821026	1130	1200	2000	109					
	23	6	S	MJ9158	821026	1150	380	1400	130					
	23	9	S	MJ9159	821026	1200	280	520	160					
	23	SHAL	W	MJ9162	821026	1430	3600	240	9800			11		
	24	3	S	MJ9163	821022	0950	530	60	94					
	24	6	S	MJ9164	821022	1000	390	120	41			2.2		
	24	9	S	MJ9165	821022	1020	130	43	37			1.4		
	24	12	S	MJ9166	821022	1045	240	52	48			3.6		
	24	15	S	MJ9167	821022	1055	29	14	51					
	24	SHAL	W	MJ9168	821105	1130	96		800					
	25	3	S	MJ9169	821026	1340	33	560	87					
	25	6	S	MJ9170	821026	1355	121	210	160					
	25	9	S	MJ9171	821026	1440	89	290	170					
	25	SHAL	W	MJ9174	821111	1130	2900	23	2000					
	25	DEEP	W	MJ9180	821110	1500	1200	160	740					
	26	3	S	MJ9181	821026	1425	38	6	120					

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							METALS PARAMETERS							
	26	6	S	MJ9182	821026	1440	170	240	118					
	26	9	S	MJ9183	821026	1450	140	1800	124					
	26	SHAL	W	MJ9186	821111	1230	6300	34 K	2200					
	27	SHAL	W	MJ8046	821116	1100	12 K	94 K	4800		45	25		
	28	SHAL	W	MJ8047	821116	1230	43 K	510 K	64 K		45	25		
	29	SHAL	W	MJ8045	821115	1300	33 K	350 K	20 K		19			
	30	SHAL	W	MJ8033	821220	1100	1200	32	1200					
BERM #1		1	S	MJ9187	821025	1000	1500	510	104					
BERM #2		1	S	MJ9188	821025	1015	920	1700	98					
BERM #3		1	S	MJ9189	821025	1030	850	2900	100					
BERM #4		1	S	MJ9190	821025	1045	1080	13.3K	160					
BERM #5		1	S	MJ9191	821025	1100	850	7800	102					1.0
BERM #6		1	S	MJ9192	821025	1115	880	1200	110					
BERM #7		1	S	MJ9193	821025	1130	2900	16 K	120			2.4		0.9
BERM #8		1	S	MJ9194	821025	1145	82	540	170	140				
BERM #9		1	S	MJ9195	821025	1200	48	1190	170	76				
BLANK			S	MJ9197	821008		1.5 M	1 M	28	20 M	1 M	1 M	2 M	0.2 M
DRILLER'S WATER			W	MJ9199	821012			1.7						
PEA GRAVEL			S	MJ9198	821012		10	23						
SS#2		0	S	MJ9328	821118	0952	550	6200	60			16	34	
SS#3		0	S	MJ9329	821118	0956	180	27.6K	61			5.8		
SS#4		0	S	MJ9335	821118	1002	260	6800	54			38	98	
SS#5		0	S	MJ9341	821118	1008	2600	81 K	88		6.1	17	6.0	
SS#6		0	S	MJ9346	821118	1027	400	1400	61					
SS#7		0	S	MJ9347	821118	1036	740	2000	60					
SS#8		0	S	MJ9059	821118	1041	530	4700	53			8.5		
SS#9		0	S	MJ9073	821118	1044	600	330	54			1.3		
SS#10		0	S	MJ9074	821118	1048	620	820	47			2.0	9.5	
SS#11		0	S	MJ9075	821118	1050	160	760	45					
SS#12		0	S	MJ9076	821118	1053	550	2400	90			4.3	4.5	
TRANSFER BLANK			W	MJ8043	821101	1100		140	540					
TRANSPORT BLANK			W	MJ8044	821101	1100			540					

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	01	3	S	MJ9301	821007	0900	1 M	0.02M	2 M	0.85	9.8		11
	01	6	S	MJ9302	821007	0915	1 M	0.02M	2 M	8.2	4.9		5.8
	01	9	S	MJ9303	821007	0930	1 M	0.02M	2 M	23	1.5		20
	01	12	S	MJ9304	821007	0945	1 M	0.02M	2 M	5.4	2.7		9.2
	01	SHAL	W	MJ9312	821108	1330		0.2					
	01	DEEP	W	MJ9311	821108	1400		0.63					
	02	3	S	MJ9313	821014	1025				1.03	46		3.7
	02	6	S	MJ9314	821014	1030				0.38	2.3		
	02	9	S	MJ9315	821014	1035				1.4	4.7		
	02	12	S	MJ9316	821014	1040				13	2.2		
	02	15	S	MJ9317	821014	1045				13			
	02	SHAL	W	MJ9318	821102	1100		0.33		25			13
	03	3	S	MJ9319	821014	1155				1.8	78		
	03	6	S	MJ9320	821014	1205			2.9	44	110		
	03	9	S	MJ9321	821014	1210			3.0	5.7	110		
	03	SHAL	W	MJ9324	821115	1200		0.53		94	3300		4400
	04	3	S	MJ9325	821018	1415	1 M	0.02M	2 M	1.4	19		22
	04	6	S	MJ9326	821018	1430	1 M	0.02M	2 M	0.39	9.6		1 M
	04	9	S	MJ9327	821018	1435	1 M	0.02M	2 M	0.82	1.9		1 M
	04	SHAL	W	MJ9330	821102	1500		0.28					
	05	3	S	MJ9331	821018	1330	1 M	0.02M	2 M	2.1	91		1 M
	05	6	S	MJ9332	821018	1330	1 M	0.02M	2 M	49	140		2.2
	05	9	S	MJ9333	821018	1330	1 M	0.02M	2 M	7.3	66		1.1
	05	12	S	MJ9334	821018	1330	1 M	0.02M	2 M	98	101		1 M
	05	SHAL	W	MJ9336	821103	1400		0.28		160			35 K
	06	3	S	MJ9337	821018	1035	1 M	0.02M	2 M	0.33	20		10.1
	06	6	S	MJ9338	821018	1045	1 M	0.02M	2 M	5.2	20		1 M
	06	9	S	MJ9339	821018	1050	1 M	0.02M	2 M	6.0	10.9		1 M
	06	12	S	MJ9340	821018	1100	1 M	0.02M	2 M	28	0.5 M		3.8
	06	SHAL	W	MJ9342	821103	1100		0.43		85			
	07	3	S	MJ9343	821014	1415			2.9	0.51	19		
	07	6	S	MJ9344	821014	1425			3.4	22	3.5		
	07	9	S	MJ9345	821014	1430			3.2	9.2	1.11		
	07	SHAL	W	MJ9348	821103	1430		0.78		120			13
	08	3	S	MJ9349	821025	1410		0.03		3.8	130		
	08	SHAL	W	MJ9054	821108	1500		0.38		175			
	09	3	S	MJ9055	821019	1020	1.5						
	09	6	S	MJ9056	821019	1030				7.0	2.4		
	09	9	S	MJ9057	821019	1040				4.1	1.6		
	09	12	S	MJ9058	821019	1045				2.6	11.6		2.7
	09	SHAL	W	MJ9060	821103	1500		0.23		130			1900
	10	3	S	MJ9061	821019	1235				22	49		
	10	6	S	MJ9062	821019	1250				39			5.0
	10	9	S	MJ9063	821019	1310				25	18		
	10	12	S	MJ9064	821019	1340				52	1.53		6.0
	10	15	S	MJ9065	821019	1405				27	1.6		6.2

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	10	SHAL	W	MJ9066	821104	1000		0.43		60 K	620		830
	11	3	S	MJ9067	821008	1100	1 M	0.02M	20 M	0.35	2.8		16
	11	6	S	MJ9068	821008	1115	1 M	0.02M	2 M	2.0	6.7		12.2
	11	8	S	MJ9069	821008	1130	1 M	0.36	2 M	1.24	7.6		6.6
	11	10	S	MJ9070	821008	1145	1 M	0.02M	2 M	6.5	23		11.7
	11	12	S	MJ9071	821008	1200	1 M	0.02M	2 M	2.1	280		22
	11	SHAL	W	MJ9072	821109	1030		1.28		4800	1600		53
	11	DEEP	W	MJ9078	821109	1100		0.43		3900	1100		36
	12	3	S	MJ9079	821025	1130				2.1	22		
	12	9	S	MJ9081	821025	1200				5.1	8.4		
	12	12	S	MJ9082	821025	1230				22			
	12	15	S	MJ9083	821025	1240				8.4			
	12	SHAL	W	MJ9084	821103	1200		0.28		210			
	13	3	S	MJ9085	821027	1310				5.1	12.1		5.1
	13	6	S	MJ9086	821027	1325				1.18	2.8		1.6
	13	9	S	MJ9087	821027	1400					1.2		3.6
	14	3	S	MJ9091	821020	0945				15	340		
	14	6	S	MJ9092	821020	1020				4.8	76		2.3
	14	9	S	MJ9093	821020	1040		0.04		7.1	5.2		3.5
	14	12	S	MJ9094	821020	1100		0.03		9.5	12.5		4.8
	14	15	S	MJ9095	821020	1145		0.03		9.6	29		
	14	SHAL	W	MJ9096	821104	1400		0.53		12 K	730		41
	15	3	S	MJ9097	821025	1500				8.3	72		
	15	6	S	MJ9098	821025	1510				170	1500		55.6
	15	9	S	MJ9099	821025	1520		0.06		200	4800		5.4
	15	SHAL	W	MJ9102	821112	1230		1.1		11			1200
	16	3	S	MJ9103	821020	1310		0.03		20	84 K		
	16	6	S	MJ9104	821020	1325		0.05		20	141 K		2.2
	16	9	S	MJ9105	821020	1345		0.04		6.9	850		
	16	12	S	MJ9106	821020	1405				5.5	5200		
	16	15	S	MJ9107	821020	1430				1.18	232		
	16	SHAL	W	MJ9108	821104	1100		0.43		580	470		450
	17	3	S	MJ9109	821011	1100				8.3	200		7.1
	17	6	S	MJ9110	821011	1120				18	190		1.8
	17	9	S	MJ9111	821011	1150				13.6	87		
	17	12	S	MJ9112	821011	1230				8.0	39		2.7
	17	15	S	MJ9113	821011	1300				12.8	42		2.6
	17	18	S	MJ9114	821013	1330				11.5	167		9.0
	17	21	S	MJ9116	821013	1350				11.1	82		5.1
	17	24	S	MJ9117	821013	1400				3.4	53		2.2
	17	27	S	MJ9118	821013	1405				2.5	27		5.5
	17	30	S	MJ9119	821013	1420				2.5	41		
	17	SHAL	W	MJ8042	821110	1000		0.83		4500	1600		92
	17	DEEP	W	MJ9120	821110	1100		0.83		800	210		
	18	3	S	MJ9121	821026	1000		0.03		3.5	1130		
	18	6	S	MJ9122	821026	1020		0.02		3.1	4500		

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	18	9	S	MJ9123	821026	1030		0.04		4.3	630		
	18	SHAL	W	MJ9126	821112	1130				240	110		
	19	3	S	MJ9127	821027	1000				8.9	1.24		3.4
	19	6	S	MJ9128	821027	1015				8.2			
	19	9	S	MJ9129	821027	1045				0.64	1.01		1.7
	19	12	S	MJ9130	821027	1120				2.0	2.4		
	19	SHAL	W	MJ9132	821101	1600				290			
	20	3	S	MJ9133	821021	0940				58	1900		
	20	6	S	MJ9134	821021	1010				8.4	240		
	20	9	S	MJ9135	821021	1030				13	67		
	20	12	S	MJ9136	821021	1055				4.9	190		2
	20	15	S	MJ9137	821021	1120				1.25	32		
	20	SHAL	W	MJ9138	821104	1330		0.38		100	280		70
	21	3	S	MJ9139	821021	1400			7.6	226	6400		
	21	6	S	MJ9140	821021	1445			3.0	63	1800		
	21	9	S	MJ9141	821021	1510				38	1010		
	21	12	S	MJ9142	821021	1535				2.5	28		
	21	15	S	MJ9143	821021	1545				1.8	50		
	21	SHAL	W	MJ9144	821105	1030		0.28					
	22	3	S	MJ9145	821012	0900			6.4	79	16 K		3.4
	22	6	S	MJ9146	821012	0930			7.4	134	12 K		22.6
	22	9	S	MJ9147	821012	1000			10.0	402	24.8K		179
	22	12	S	MJ9148	821012	1030				93	5600		113
	22	15	S	MJ9149	821012	1100				10.6			5.3
	22	SHAL	W	MJ9150	821110	1200				18	250		360
	22	DEEP	W	MJ9156	821110	1300		46		77			36
	23	3	S	MJ9157	821026	1130		0.02		8.9	45.6K		
	23	6	S	MJ9158	821026	1150		0.02		16	480		8.5
	23	9	S	MJ9159	821026	1200		0.02		7.6	121		
	23	SHAL	W	MJ9162	821026	1430					430		
	24	3	S	MJ9163	821022	0950				0.59	11		
	24	6	S	MJ9164	821022	1000				0.86	44		
	24	9	S	MJ9165	821022	1020		0.04		0.29	11.3		3.6
	24	12	S	MJ9166	821022	1045				0.31	4.9		
	24	15	S	MJ9167	821022	1055					2.0		3.6
	24	SHAL	W	MJ9168	821105	1130		0.58					19
	25	6	S	MJ9170	821026	1355		0.05			13.0		
	25	9	S	MJ9171	821026	1440					66		
	25	DEEP	W	MJ9180	821110	1500		0.58					
	26	3	S	MJ9181	821026	1425				2.9	13		
	26	6	S	MJ9182	821026	1440					20		3.9
	26	9	S	MJ9183	821026	1450				1.8	96		
	26	SHAL	W	MJ9186	821111	1230				10			
	27	SHAL	W	MJ8046	821116	1100				320			43
	28	SHAL	W	MJ8047	821116	1230				5600	6.5		920
	29	SHAL	W	MJ8045	821115	1300				76			

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	30	SHAL	W	MJ8033	821220	1100		0.31			21		
BERM #1		1	S	MJ9187	821025	1000				13	220		
BERM #2		1	S	MJ9188	821025	1015				8.6	470		
BERM #3		1	S	MJ9189	821025	1030				17	3300		
BERM #4		1	S	MJ9190	821025	1045		0.04		49	1090		
BERM #5		1	S	MJ9191	821025	1100				30	3000		
BERM #6		1	S	MJ9192	821025	1115		0.03		5.7	770		
BERM #7		1	S	MJ9193	821025	1130		0.06		71	5100		
BERM #8		1	S	MJ9194	821025	1145		0.14		14	230		
BERM #9		1	S	MJ9195	821025	1200				22	170		
BLANK			S	MJ9197	821008		1 M	0.02M	2 M	0.1 M	0.5 M		1 M
DRILLER'S WATER			W	MJ9199	821012					0.17			
PEA GRAVEL			S	MJ9198	821012					0.67			3.6
SS#2		0	S	MJ9328	821118	0952			10.3	50	10.3K		4.1
SS#3		0	S	MJ9329	821118	0956				0.89	2400		
SS#4		0	S	MJ9335	821118	1002				30	31 K		1.5
SS#5		0	S	MJ9341	821118	1008			19	420	17 K		
SS#6		0	S	MJ9346	821118	1027			3.2	6.1	450		8.4
SS#7		0	S	MJ9347	821118	1036				6.8	660		
SS#8		0	S	MJ9059	821118	1041				16	870		
SS#9		0	S	MJ9073	821118	1044				1.6	120		
SS#10		0	S	MJ9074	821118	1048				4.3	5900		1.2
SS#11		0	S	MJ9075	821118	1050				1.7	190		13
SS#12		0	S	MJ9076	821118	1053				10.1	11300		15

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							ACID COMPOUNDS							
	03	9	S	J1621	821014	1210					760 M			
	04	SHAL	W	J1630	821102	1500					10 KM			
	05	SHAL	W	J1636	821103	1500	8800				520			
	06	SHAL	W	J1642	821103	1100				20 M	20 M	150 M		
	07	SHAL	W	J1648	821103	1430					4600			
	08	SHAL	W	J1654	821108	1500					98			
	10	3	S	J1661	821019	1235				3700	440 M			
	10	6	S	J1662	821019	1250				7900				
	10	9	S	J1663	821019	1310				5200				
	10	12	S	J1664	821019	1340					4500			
	10	15	S	J1665	821019	1405					7900			
	10	SHAL	W	J1666	821104	1000				10 KM				
	11	12	S	J1671	821008	1200					600 M			
	11	SHAL	W	J1672	821109	1030					200			
	11	DEEP	W	J1678	821109	1100					45 M			
	12	12	S	J1682	821025	1230					400 M			
	12	SHAL	W	J1684	821103	1200	20 M			38 M	1100			
	14	3	S	J1691	821020	0945					400 M			
	14	15	S	J1695	821020	1145					400 M			
	15	SHAL	W	J1702	821112	1230	52 M						3200	
	17	9	S	J1711	821011	1150					440 M			
	17	SHAL	W	J0427	821110	1000					10 KM			
	17	DEEP	W	J1720	821110	1100					54 M	300		
	21	3	S	J1739	821021	1400				1900				
	21	6	S	J1740	821021	1445			400 M	4900				
	21	9	S	J1741	821021	1510			400 M	3000	400 M			
	21	12	S	J1742	821021	1535					10 K			
	21	15	S	J1743	821021	1545					2600			
	21	SHAL	W	J1744	821105	1030	20 M		36 M	34 M	1000	190	200 M	
	22	12	S	J1748	821012	1030					10 KM			
	22	15	S	J1749	821012	1100					1000 M			
	23	3	S	J1757	821026	1130					400 M			
	23	SHAL	W	J1762	821026	1430					280			
	27	SHAL	W	J0462	821116	1100						1.3KK		
	28	SHAL	W	J0463	821116	1230			200 M	220				
	29	SHAL	W	J0461	821115	1300					20 M			
SS#7		0	S	J1647	821118	1036					510 M			
SS#8		0	S	J1659	821118	1041					11 K			
SS#11		0	S	J1675	821118	1050					1070			

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	02	12	S	J1616	821014	1040		800 M	
	03	6	S	J1620	821014	1205			400 M
	03	9	S	J1621	821014	1210			400 M
	03	SHAL	W	J5052	821115	1200			10 KM
	04	SHAL	W	J1630	821102	1500			19 KM
	05	12	S	J1634	821018	1330			16 KM
	05	SHAL	W	J1636	821103	1500		1400	270 K
	06	SHAL	W	J1642	821103	1100			80 M
	07	SHAL	W	J1648	821103	1430			500
	09	SHAL	W	J1660	821103	1500			100 K
	10	6	S	J1662	821019	1250			19 K
	10	9	S	J1663	821019	1310			27 K
	10	12	S	J1664	821019	1340			11 K
	10	15	S	J1665	821019	1405			20 K
	10	SHAL	W	J1666	821104	1000			180 K
	11	SHAL	W	J1672	821109	1030			3000
	11	DEEP	W	J1678	821109	1100			7200
	12	SHAL	W	J1684	821103	1200	40 M	40 M	120
	14	3	S	J1691	821020	0945		800 M	1100
	14	6	S	J1692	821020	1020			640 M
	14	9	S	J1693	821020	1040			14 K
	14	12	S	J1694	821020	1100			10 K
	14	15	S	J1695	821020	1145			2900
	14	SHAL	W	J1696	821104	1400			42 KM
	15	SHAL	W	J1702	821112	1230		80 M	4900
	16	15	S	J1707	821020	1430			400 M
	17	3	S	J1709	821011	1100			15 KM
	17	6	S	J1710	821011	1120			15 KM
	17	9	S	J1711	821011	1150			12 K
	17	12	S	J1712	821011	1230			14 KM
	17	15	S	J1713	821011	1300			12 KM
	17	18	S	J1714	821013	1330			16 KM
	17	24	S	J1717	821013	1400		1700 M	440 M
	17	27	S	J1718	821013	1405			400 M
	17	30	S	J1719	821013	1420			400 M
	17	SHAL	W	J0427	821110	1000			91 K
	17	DEEP	W	J1720	821110	1100			380
	18	3	S	J1721	821026	1000			11.5KM
	20	12	S	J1736	821021	1055			680 M
	21	12	S	J1742	821021	1535			5.5K
	21	15	S	J1743	821021	1545			65 K
	21	SHAL	W	J1744	821105	1030	40 M		10 K
	22	3	S	J1745	821012	0900			10 KM
	22	6	S	J1746	821012	0930			10 KM
	22	9	S	J1747	821012	1000			10 KM
	22	12	S	J1748	821012	1030			10 KM

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	22	15	S	J1749	821012	1100			460 M
	23	SHAL	W	J1762	821026	1430			5200
	27	SHAL	W	J0462	821116	1100			4.1KK
	28	SHAL	W	J0463	821116	1230			4 K
BERM #7		1	S	J1793	821025	1130			10 KM
SS#6		0	S	J1646	821118	1027			400 M
SS#7		0	S	J1647	821118	1036			760 M
SS#8		0	S	J1659	821118	1041		17 K	19 K
SS#11		0	S	J1675	821118	1050			1170
SS#12		0	S	J1676	821118	1053		7700	2600

UNITS: LIQUID - UG/L (PPB) DISSOLVED
SOIL - UG/KG (PPB) DRY WEIGHT BASIS FOR ALL QUANTIFIABLE VALUES

ORGANIC ANALYSES

WESTERN PROCESSING INVESTIGATION
KENT, WASHINGTON

M = COMPOUND PRESENT BUT BELOW THE MINIMUM QUANTIFIABLE LIMIT
K = MULTIPLY THE VALUE BY 1,000
KK = MULTIPLY THE VALUE BY 1,000,000

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	ALDRIN	DIELDRIN	CHLOR-DANE	4,4'-DDT	4,4'-DDE	4,4'-DDD	A-ENDO SULFAN	B-ENDO SULFAN
							PESTICIDES							
	06	3	S	J1637	821018	1035	2.86K	3.34K						
	17	3	S	J1709	821011	1100				38		100		
	25	9	S	J1771	821026	1440				129				
	28	SHAL	W	J0463	821116	1230	3.30	3.60						
SS#5		0	S	J1641	821118	1008		145						

STATION DESCRIPTION	NUM	RIVER	M	NUM	DATE	TIME	ENDO SULFAN SULFATE	ENDRIN	ENDRIN ALDEHYDE	HEPTA CHLOR	HEPTA CHLOR EPOXIDE	A-BHC	B-BHC	D-BHC	G-BHC LINDANE
							PESTICIDES								
	06	3	S	J1637	821018	1035				2.93K					
	17	3	S	J1709	821011	1100									11.8
	28	SHAL	W	J0463	821116	1230				3.29					
SS#5		0	S	J1641	821118	1008									34
SS#6		0	S	J1646	821118	1027									0.03K

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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ORGANIC ANALYSES

WESTERN PROCESSING INVESTIGATION
KENT, WASHINGTON

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@ = ALL PCBS ARE SUMED INTO PCB-1242
K = MULTIPLY THE VALUE BY 1,000
KK = MULTIPLY THE VALUE BY 1,000,000

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	PCB: PCB-1242	PCB-1254	PCB-1221	PCB-1232	PCB-1248	PCB-1260	PCB-1016	TOXA-PHENE	TCDD DIOXIN
	03	6	S	J1620	821014	1205	939 @	@	@	@	@	@	@		
	05	3	S	J1631	821018	1330						108	304		
	05	12	S	J1634	821018	1330					658				?
	06	6	S	J1638	821018	1045					2930				
	06	9	S	J1639	821018	1050					586				
	07	6	S	J1644	821014	1425						58			
	09	3	S	J1655	821019	1020					1510				
	10	3	S	J1661	821019	1235					1142				
	14	3	S	J1691	821020	0945		407							?
	15	3	S	J1697	821025	1500						532			
	15	6	S	J1698	821025	1510						1.71K	3.16K		
	15	9	S	J1699	821025	1520					19.6K				
	17	3	S	J1709	821011	1100									?
	20	12	S	J1736	821021	1055									?
	21	6	S	J1740	821021	1445	935				935				
	23	3	S	J1757	821026	1130									?
	23	6	S	J1758	821026	1150	1.78K@	@	@	@	@	@	@		
	23	9	S	J1759	821026	1200	0.81K@	@	@	@	@	@	@		
	25	9	S	J1771	821026	1440						111			
BERM #6		1	S	J1792	821025	1115	137 @	@	@	@	@	@	@		
BERM #8		1	S	J1794	821025	1145						2030			
BERM #9		1	S	J1795	821025	1200					2046				
SS#11		0	S	J1675	821118	1050		3300							
SS#12		0	S	J1676	821118	1053		2912							

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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ORGANIC ANALYSES

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	BASE / NEUTRALS: ACENAPHTHENE	BENZIDINE	1,2,4-TRICHLORBENZENE	HEXACHLOROBENZENE	HEXACHLOROETHANE	BIS 2-CHLOROEHTYL) ETHER	2-CHLORONAPHTHALENE	1,2-DICHLOROBENZENE	1,3-DICHLOROBENZENE
	02	SHAL	W	J1618	821102	1100						20 M			
	03	9	S	J1621	821014	1210	400 M								
	11	12	S	J1671	821008	1200	8700								
	12	SHAL	W	J1684	821103	1200						20 M			
	14	3	S	J1691	821020	0945					760 M				
	14	6	S	J1692	821020	1020					1800				
	14	9	S	J1693	821020	1040					920 M				
	15	6	S	J1698	821025	1510								565 K	
	15	9	S	J1699	821025	1520								260 K	
	15	SHAL	W	J1702	821112	1230								160	
	22	3	S	J1745	821012	0900	10 KM								
	22	6	S	J1746	821012	0930	10 KM								
	22	15	S	J1749	821012	1100	430 M								
SS#7		0	S	J1647	821118	1036	800 M							2200	400 M
SS#8		0	S	J1659	821118	1041	5090 K								
SS#11		0	S	J1675	821118	1050	400 M								
SS#12		0	S	J1676	821118	1053	4700								

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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ORGANIC ANALYSES

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	BASE / NEUTRALS: 1,4-DI CHLORO BENZENE	3,3'-DICHLORO BENZI DINE	2,4-DINITRO TOLUENE	2,6-DINITRO TOLUENE	1,2-DI PHENYLHY DRAZAINE	FLUOR ANTHENE	4-CHLORO PHENYL PHENLY ETHER	4-BROMO PHENYL PHENLY ETHER	BIS(2-CHLOROISO PROPYL) ETHER
	03	6	S	J1620	821014	1205						400 M			
	03	9	S	J1621	821014	1210						400 M			
	11	12	S	J1671	821008	1200						7300			
	14	3	S	J1691	821020	0945						440 M			
	20	3	S	J1733	821021	0940						400 M			
	21	3	S	J1739	821021	1400						7700			
	21	6	S	J1740	821021	1445						560 M			
	21	9	S	J1741	821021	1510						400 M			
	22	3	S	J1745	821012	0900						17 KM			
	22	6	S	J1746	821012	0930						10 KM			
	22	12	S	J1748	821012	1030						10 KM			
	22	15	S	J1749	821012	1100						660 M			
	23	3	S	J1757	821026	1130						400 M			
BERM #3		1	S	J1789	821025	1030						400 M			
SS#2		0	S	J1628	821118	0952						11 KM			
SS#4		0	S	J1635	821118	1002						6300			
SS#5		0	S	J1641	821118	1008						400 M			
SS#6		0	S	J1646	821118	1027						400 M			
SS#7		0	S	J1647	821118	1036	400 M					6000			
SS#8		0	S	J1659	821118	1041						15 K			
SS#9		0	S	J1673	821118	1044						29 KM			
SS#10		0	S	J1674	821118	1048						59 K			
SS#11		0	S	J1675	821118	1050						234 K			
SS#12		0	S	J1676	821118	1053						16 K			

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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ORGANIC ANALYSES

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							BASE / NEUTRALS								
STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	BIS 2-CHLORO ETHOXY METHANE	HEXA CHLORO BUTA DIENE	HEXA CHLOROCY CLOPENT ADIENE	ISO PHORONE	NAPH THALENE	NITRO BENZENE	N-NITROSO DIMETHYL AMINE	N-NITROSO DIPHENYL AMINE	N-NITROSO DIPROPYL AMINE
	02	SHAL	W	J1618	821102	1100								20 M	
	03	9	S	J1621	821014	1210					13 K				
	05	6	S	J1632	821018	1330					400 M				
	05	9	S	J1633	821018	1330					400 M				
	10	9	S	J1663	821019	1310				400 M					
	10	15	S	J1665	821019	1405				400 M					
	11	8	S	J1669	821008	1130					500 M				
	11	10	S	J1670	821008	1145					17 KM				
	11	12	S	J1671	821008	1200				400 M	5200				
	11	SHAL	W	J1672	821109	1030				20 M	20 M				
	11	DEEP	W	J1678	821109	1100					23 M				
	12	6	S	J1680	821025	1140								480 M	
	12	SHAL	W	J1684	821103	1200					20 M				
	14	3	S	J1691	821020	0945					1800 M				
	14	6	S	J1692	821020	1020		400 M			400 M				
	14	9	S	J1693	821020	1040				400 M					
	15	SHAL	W	J1702	821112	1230					20 M				
	17	9	S	J1711	821011	1150					1700 M				
	17	21	S	J1716	821013	1350					400 M				
	17	DEEP	W	J1720	821110	1100				44 M	36 M				
	20	6	S	J1734	821021	1010					4300				
	20	12	S	J1736	821021	1055					400 M				
	21	6	S	J1740	821021	1445					400 M				
	21	9	S	J1741	821021	1510					400 M				
	22	3	S	J1745	821012	0900					34 KM				
	22	6	S	J1746	821012	0930					30 KM				
	22	9	S	J1747	821012	1000					13 KM				
	22	12	S	J1748	821012	1030					12 KM				
	22	15	S	J1749	821012	1100					2961				
	22	DEEP	W	J1756	821110	1300					40 M				
	28	SHAL	W	J0463	821116	1230				540					
BERM #1		1	S	J1787	821025	1000					400 M				
SS#4		0	S	J1635	821118	1002					7400				
SS#6		0	S	J1646	821118	1027					400 M				
SS#7		0	S	J1647	821118	1036					4000				
SS#8		0	S	J1659	821118	1041					6200 K				
SS#9		0	S	J1673	821118	1044					13 KM				
SS#10		0	S	J1674	821118	1048					120 K				
SS#11		0	S	J1675	821118	1050					627 K				
SS#12		0	S	J1676	821118	1053					18 K				
TRANSPORT BLANK			W	J0429	821101	1100					20 M				

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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ORGANIC ANALYSES

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	BASE / NEUTRALS: BIS 2-ETHYL HEXYL PHTHALAT	BENZYL BUTYL PHTHALAT	DI-N-BUTYL PHTHALAT	DI-N-OCTYL PHTHALAT	DIETHYL PHTHALAT	DIMETHYL PHTHALAT	BENZO A ANTHRA CENE	BENZO A PYRENE	BENZO B FLUORAN THENE
	03	9	S	J1621	821014	1210	1200 M								
	11	8	S	J1669	821008	1130	3100								
	11	12	S	J1671	821008	1200	29.9K	9100					840 M		
	12	SHAL	W	J1684	821103	1200							60 M	40 M	40 M
	16	6	S	J1704	821020	1325	29 K								
	16	9	S	J1705	821020	1345	29.6K								
	21	3	S	J1739	821021	1400	3500						4000		
	21	6	S	J1740	821021	1445							400 M		
	21	9	S	J1741	821021	1510	600 M								
	22	6	S	J1746	821012	0930	29 KM								
	22	9	S	J1747	821012	1000	410 K								
	22	15	S	J1749	821012	1100	31 K								
	23	3	S	J1757	821026	1130							400 M		
	30	SHAL	W	J0465	821220	1100	544K								
SS#2		0	S	J1628	821118	0952	74 K								
SS#4		0	S	J1635	821118	1002	410 K			29 K			400 M		
SS#6		0	S	J1646	821118	1027	1000 M								
SS#7		0	S	J1647	821118	1036	4600						720 M		
SS#8		0	S	J1659	821118	1041							884 K		200 K
SS#10		0	S	J1674	821118	1048	500 K								
SS#11		0	S	J1675	821118	1050	860 K						76 K		
SS#12		0	S	J1676	821118	1053	12 K		2600				4400		

UNITS: LIQUID - UG/L (PPB) DISSOLVED
SOIL - UG/KG (PPB) DRY WEIGHT BASIS FOR ALL QUANTIFIABLE VALUES

ORGANIC ANALYSES

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KK = MULTIPLY THE VALUE BY 1,000,000

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	BASE / NEUTRALS: BENZO K FLUORANTHENE	CHRYSENE	ACENAPHTHYLENE	ANTHRACENE	BENZO GHI PERYLENE	FLUORENE	PHENANTHRENE	DIBENZO A,H ANTHRACENE	INDENO 1,2,3-CD PYRENE
	03	6	S	J1620	821014	1205							400 M		
	03	9	S	J1621	821014	1210						400 M	6500		
	05	3	S	J1631	821018	1330							400 M		
	05	6	S	J1632	821018	1330		400 M					400 M		
	05	9	S	J1633	821018	1330							400 M		
	11	8	S	J1669	821008	1130							400 M		
	11	10	S	J1670	821008	1145							11 KM		
	11	12	S	J1671	821008	1200		520 M		1200 M		16.9K	62.4K		
	12	SHAL	W	J1684	821103	1200	40 M	20 M			64 M			44 M	42 M
	14	3	S	J1691	821020	0945							1300 M		
	14	6	S	J1692	821020	1020							400 M		
	14	9	S	J1693	821020	1040							400 M		
	17	9	S	J1711	821011	1150						400 M	480 M		
	21	3	S	J1739	821021	1400		2500		1600			7000		
	21	6	S	J1740	821021	1445		400 M					760 M		
	21	9	S	J1741	821021	1510							600 M		
	22	3	S	J1745	821012	0900						10 KM	34 KM		
	22	6	S	J1746	821012	0930				10 KM		10 KM	30 KM		
	22	9	S	J1747	821012	1000							12 KM		
	22	12	S	J1748	821012	1030							12 KM		
	22	15	S	J1749	821012	1100				400 M		550 M	2961		
	23	3	S	J1757	821026	1130		400 M					400 M		
BERM #1		1	S	J1787	821025	1000							400 M		
BERM #3		1	S	J1789	821025	1030							400 M		
SS#2		0	S	J1628	821118	0952							11 KM		
SS#4		0	S	J1635	821118	1002		400 M					11 K		
SS#5		0	S	J1641	821118	1008							400 M		
SS#6		0	S	J1646	821118	1027							740 M		
SS#7		0	S	J1647	821118	1036		880 M		400 M		800 M	6500		
SS#8		0	S	J1659	821118	1041	130 K	1210 K	400 M			8600 K	20 KK		
SS#9		0	S	J1673	821118	1044		11 KM					18 KM		
SS#10		0	S	J1674	821118	1048							190 K		
SS#11		0	S	J1675	821118	1050		85 K				62 K	763 K		
SS#12		0	S	J1676	821118	1053		5100				5100	1800 M		

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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WESTERN PROCESSING INVESTIGATION
KENT, WASHINGTON

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	BASE / NEUTRALS: PYRENE	BENZO(A)ANTHRACENE/ CHRYSENE	BENZO(B)FLUORANTHENE/ BENZO(K)FLUORANTHENE	ANTHRACENE/ PHENANTHRENE
	03	6	S	J1620	821014	1205	440 M			
	03	9	S	J1621	821014	1210	400 M			
	11	12	S	J1671	821008	1200	11.0K			
	14	3	S	J1691	821020	0945	640 M			
	20	3	S	J1733	821021	0940	520 M			
	21	3	S	J1739	821021	1400	7400			
	21	6	S	J1740	821021	1445	400 M			
	21	9	S	J1741	821021	1510	400 M			
	22	3	S	J1745	821012	0900	13 KM			
	22	6	S	J1746	821012	0930	10 KM			
	22	15	S	J1749	821012	1100	530 M			
	23	3	S	J1757	821026	1130	400 M			
BERM #1		1	S	J1787	821025	1000	400 M			
BERM #3		1	S	J1789	821025	1030	400 M			
SS#2		0	S	J1628	821118	0952	16 KM			
SS#3		0	S	J1629	821118	0956	400 M			
SS#4		0	S	J1635	821118	1002	6300			
SS#5		0	S	J1641	821118	1008	400 M			
SS#6		0	S	J1646	821118	1027	400 M			
SS#7		0	S	J1647	821118	1036	6800			
SS#8		0	S	J1659	821118	1041	16 KK			
SS#9		0	S	J1673	821118	1044	40 KM			
SS#10		0	S	J1674	821118	1048	65 K			
SS#11		0	S	J1675	821118	1050	283 K			
SS#12		0	S	J1676	821118	1053	18 K			

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES: 1,1,2,2-TETRA CHLORO ETHANE	CHLORO ETHANE	2-CHLORO ETHYL VINLY ETHER	CHLORO FORM	1,1-DICHLORO ETHENE	TRANS-1,2-DICHLORO ETHENE	1,2-DICHLORO PROPANE	TRANS-1,3-DICHLORO PROPENE	CIS-1,3-DICHLORO PROPENE
	01	3	S	J1601	821007	0900						2.5 M			
	01	SHAL	W	J1606	821108	1330						4400			
	01	DEEP	W	J1612	821108	1400						18 M			
	02	12	S	J1616	821014	1040						9.2 M			
	02	15	S	J1617	821014	1045						2.7 M			
	02	SHAL	W	J1618	821102	1100				32	11 M	1200			
	03	9	S	J1621	821014	1210						2.5 M			
	04	SHAL	W	J1630	821102	1500		11 M		17 M	38	5800			
	05	SHAL	W	J1636	821103	1500				130	87	15 M			
	06	SHAL	W	J1642	821103	1100				52	29	21 M			
	07	SHAL	W	J1648	821103	1430				15 M	9.2 M	390			
	08	3	S	J1649	821025	1410						2.5 M			
	08	SHAL	W	J1654	821108	1500		5 M		56	88	920			
	09	SHAL	W	J1660	821103	1500						4600			
	10	15	S	J1665	821019	1405	2.5 M								
	11	DEEP	W	J1678	821109	1100						780			
	12	SHAL	W	J1684	821103	1200				13 M	8.5 M	72			
	13	6	S	J1686	821027	1325	2.5 M								
	14	9	S	J1693	821020	1040				3.8 M					
	14	12	S	J1694	821020	1100				42					
	14	15	S	J1695	821020	1145	2.5 M								
	14	SHAL	W	J1696	821104	1400				1700					
	15	6	S	J1698	821025	1510				5 KM					
	15	SHAL	W	J1702	821112	1230				27 K					
	16	SHAL	W	J1708	821104	1100				20 M	10 M	12 M			
	17	6	S	J1710	821011	1120				8.9KM					
	17	9	S	J1711	821011	1150				18 K					
	17	12	S	J1712	821011	1230				505	2.5 M	2.5 M			
	17	21	S	J1716	821013	1350				65					
	17	24	S	J1717	821013	1400				2.5 M					
	17	SHAL	W	J0427	821110	1000				12 K					
	17	DEEP	W	J1720	821110	1100				130					
	18	SHAL	W	J1726	821112	1130				5 M	5 M	38			
	19	6	S	J1728	821027	1015	2.5 M								
	21	9	S	J1741	821021	1510						24			
	21	SHAL	W	J1744	821105	1030						390 K			
	22	9	S	J1747	821012	1000						2.5 M			
	22	SHAL	W	J1750	821110	1200						130			
	22	DEEP	W	J1756	821110	1300				7800					
	23	SHAL	W	J1762	821026	1430						85			
	24	9	S	J1765	821022	1020						28			
	24	12	S	J1766	821022	1045				2.5 M		34			
	24	15	S	J1767	821022	1055						2.5 M			
	25	9	S	J1771	821026	1440						8.1 M			
	25	SHAL	W	J1774	821111	1130						72			
	27	SHAL	W	J0462	821116	1100				6700					

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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WESTERN PROCESSING INVESTIGATION
KENT, WASHINGTON

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES: ACROLEIN	ACRYLO NITRILE	BENZENE	CARBON TETRA CHLORIDE	CHLORO BENZENE	1,2- DICHLORO ETHANE	1,1,1- TRICHLOR ETHANE	1,1- DICHLORO ETHANE	1,1,2- TRICHLOR ETHANE
BLANK			S	J1797	821008								2.6 M		
SS#4		0	S	J1635	821118	1002							2.5 M		
TRANSPORT BLANK			W	J0429	821101	1100							5 M		

UNITS: LIQUID - UG/L (PPB) DISSOLVED
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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES: ACROLEIN	ACRYLO NITRILE	BENZENE	CARBON TETRA CHLORIDE	CHLORO BENZENE	1,2-DICHLORO ETHANE	1,1,1-TRICHLOR ETHANE	1,1-DICHLORO ETHANE	1,1,2-TRICHLOR ETHANE
	01	9	S	J1603	821007	0930					11 M				
	01	SHAL	W	J1606	821108	1330							370		
	01	DEEP	W	J1612	821108	1400							6.8 M		
	02	SHAL	W	J1618	821102	1100			6.0 M			5 M	120	30	9.3 M
	04	SHAL	W	J1630	821102	1500			420			5 M	270	160	12 M
	05	12	S	J1634	821018	1330							34		
	05	SHAL	W	J1636	821103	1500			77		5 M	15 M	2900	320	
	06	SHAL	W	J1642	821103	1100			24 M		5 M	5 M	170	49	6.9 M
	07	SHAL	W	J1648	821103	1430			12 M				80	47	
	08	SHAL	W	J1654	821108	1500			14 M			9.7 M	920	620	45
	09	9	S	J1657	821019	1040							7.3 M		
	09	12	S	J1658	821019	1045							4.9 M		
	09	SHAL	W	J1660	821103	1500							5500		
	10	SHAL	W	J1666	821104	1000							5 M		
	11	3	S	J1667	821008	1100							2.5 M		
	11	6	S	J1668	821008	1115							2.5 M		
	11	8	S	J1669	821008	1130							10 M		2.5 M
	11	12	S	J1671	821008	1200							18.2		5.9 M
	11	SHAL	W	J1672	821109	1030							73 K	2100	
	11	DEEP	W	J1678	821109	1100							5200		
	12	15	S	J1683	821025	1240							3.8 M		
	12	SHAL	W	J1684	821103	1200			9.7 M				120	21 M	5 M
	14	9	S	J1693	821020	1040							4.5 M		
	14	12	S	J1694	821020	1100			5.9 M				10 M	4.5 M	
	14	SHAL	W	J1696	821104	1400			5 M				750		
	15	3	S	J1697	821025	1500							3.1 M		
	15	6	S	J1698	821025	1510			5 KM				174 K		
	15	9	S	J1699	821025	1520							15 KM		
	15	SHAL	W	J1702	821112	1230						16 K	340 K	33 K	
	16	3	S	J1703	821020	1310							5.4 M		
	16	SHAL	W	J1708	821104	1100							62	11 M	
	17	6	S	J1710	821011	1120			6.5KM				15 KM		
	17	9	S	J1711	821011	1150							16 K		
	17	12	S	J1712	821011	1230			199.5				332.5	17.3	
	17	21	S	J1716	821013	1350			9.8 M				40		
	17	SHAL	W	J0427	821110	1000			2200				1700		
	20	12	S	J1736	821021	1055			2.5 M				3.2 M		
	22	9	S	J1747	821012	1000			2.5 M					3.2 M	
	22	12	S	J1748	821012	1030			2.5 M					2.5 M	
	26	6	S	J1782	821026	1440							17		
	26	9	S	J1783	821026	1450							7.4 M		
	27	SHAL	W	J0462	821116	1100							20 K		
	28	SHAL	W	J0463	821116	1230			10 M				100	12 M	
	29	SHAL	W	J0461	821115	1300							5 M		
BERM #3		1	S	J1789	821025	1030							2.6 M		
BERM #8		1	S	J1794	821025	1145					2.5 M				

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES: 1,1,2,2-TETRA CHLORO ETHANE	CHLORO ETHANE	2-CHLORO ETHYL VINLY ETHER	CHLORO FORM	1,1-DICHLORO ETHENE	TRANS-1,2-DICHLORO ETHENE	1,2-DICHLORO PROPANE	TRANS-1,3-DICHLORO PROPENE	CIS-1,3-DICHLORO PROPENE
	28	SHAL	W	J0463	821116	1230		5 M		12 M	5.4 M				
	29	SHAL	W	J0461	821115	1300				29					
BERM #6		1	S	J1792	821025	1115	2.5 M								
BERM #8		1	S	J1794	821025	1145	2.5 M								
SS#4		0	S	J1635	821118	1002				5.1 M					
TRANSPORT BLANK			W	J0429	821101	1100				5 M					

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES: ETHYL BENZENE	METHYL LENE CHLORIDE	CHLORO METHANE	BROMO METHANE	BROMO FORM	BROMO DICHLORO METHANE	FLUORO TRICHLOR METHANE	DICHLORO DIFLUORO METHANE	CHLORO DIBROMO METHANE
	01	3	S	J1601	821007	0900		16					4 M		
	01	6	S	J1602	821007	0915							4.3 M		
	01	9	S	J1603	821007	0930		17							
	01	12	S	J1604	821007	0945		11.7 M					2.5 M		
	01	SHAL	W	J1606	821108	1330		190							
	01	DEEP	W	J1612	821108	1400		5 M							
	02	3	S	J1613	821014	1025		12 M							
	02	12	S	J1616	821014	1040		9 M	9 M						
	02	15	S	J1617	821014	1045		9 M							
	02	SHAL	W	J1618	821102	1100		180							
	03	3	S	J1619	821014	1155		7.7 M							
	03	6	S	J1620	821014	1205		78							
	03	9	S	J1621	821014	1210		7.5 M							
	04	3	S	J1625	821018	1415		22							
	04	6	S	J1626	821018	1430		11 M							
	04	9	S	J1627	821018	1435		7.6 M							
	04	SHAL	W	J1630	821102	1500		930	260						
	05	3	S	J1631	821018	1330		139							
	05	9	S	J1633	821018	1330		7.8 M							
	05	12	S	J1634	821018	1330	16	26.03							
	05	SHAL	W	J1636	821103	1500	32	23 K					5 M		
	06	3	S	J1637	821018	1035		3.2 M							
	06	6	S	J1638	821018	1045		3.6 M							
	06	9	S	J1639	821018	1050		5.9 M							
	06	12	S	J1640	821018	1100		5.9 M							
	06	SHAL	W	J1642	821103	1100	12 M	1200							
	07	3	S	J1643	821014	1415		8.8 M							
	07	6	S	J1644	821014	1425		9.5 M							
	07	9	S	J1645	821014	1430		8.4 M							
	07	SHAL	W	J1648	821103	1430	5 M	760							
	08	3	S	J1649	821025	1410							2.5 M		
	08	6	S	J1650	821025	1425		11 M							
	08	9	S	J1651	821025	1440		10 M					2.6 M		
	08	SHAL	W	J1654	821108	1500	5 M	550					9.8 M		
	09	3	S	J1655	821019	1020		6.5 M							
	09	6	S	J1656	821019	1030		6.9 M							
	09	12	S	J1658	821019	1045		11 M							
	09	SHAL	W	J1660	821103	1500		220 K							
	10	3	S	J1661	821019	1235		32.5K							
	10	6	S	J1662	821019	1250		8.9 M							
	10	9	S	J1663	821019	1310	2.5 M	22	2.5 M						
	10	12	S	J1664	821019	1340	8.3 M	89					2.5 M		
	10	15	S	J1665	821019	1405	5.3 M	114							
	10	SHAL	W	J1666	821104	1000		18 K							
	11	3	S	J1667	821008	1100		4 M							
	11	6	S	J1668	821008	1115	2.7 M	6.1 M							

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	11	8	S	J1669	821008	1130	5.6 M	20							
	11	10	S	J1670	821008	1145	7 M								
	11	12	S	J1671	821008	1200	143	51							
	11	SHAL	W	J1672	821109	1030		46 K							
	11	DEEP	W	J1678	821109	1100		250 K							
	12	3	S	J1679	821025	1130		3.4 M					3.6 M		
	12	6	S	J1680	821025	1140		7.3 M					2.5 M		
	12	9	S	J1681	821025	1200		17.94					2.5 M		
	12	12	S	J1682	821025	1230		7.4 M					2.5 M		
	12	15	S	J1683	821025	1240		19					2.9 M		
	12	SHAL	W	J1684	821103	1200	5.4 M	1540					9.2 M		
	13	6	S	J1686	821027	1325	2.5 M	9.9 M					2.5 M		
	13	9	S	J1687	821027	1400		19					4.2 M		
	14	6	S	J1692	821020	1020							4.6 M		
	14	9	S	J1693	821020	1040		143							
	14	12	S	J1694	821020	1100	3.1 M	2055		3 M					
	14	15	S	J1695	821020	1145		329							
	14	SHAL	W	J1696	821104	1400		82 K							
	15	3	S	J1697	821025	1500							73		
	15	6	S	J1698	821025	1510	5 KM	30 K							
	15	9	S	J1699	821025	1520		5 KM							
	15	SHAL	W	J1702	821112	1230		720 K							
	16	3	S	J1703	821020	1310		116					26		
	16	6	S	J1704	821020	1325		20							
	16	9	S	J1705	821020	1345		7 M					3 M		
	16	12	S	J1706	821020	1405		19					2.8 M		
	16	15	S	J1707	821020	1430		8.1 M					3.3 M		
	16	SHAL	W	J1708	821104	1100		430							
	17	3	S	J1709	821011	1100		44 K							
	17	6	S	J1710	821011	1120	37 K	15 KM							
	17	9	S	J1711	821011	1150	29 K	49 K							
	17	12	S	J1712	821011	1230	1596	1197					36		
	17	15	S	J1713	821011	1300		4352							
	17	18	S	J1714	821013	1330							3.7 M		
	17	21	S	J1716	821013	1350	89	832							
	17	24	S	J1717	821013	1400	27	29							
	17	27	S	J1718	821013	1405		1402							
	17	30	S	J1719	821013	1420		2030							
	17	SHAL	W	J0427	821110	1000		42 K					920		
	17	DEEP	W	J1720	821110	1100		1200							
	18	3	S	J1721	821026	1000		11							
	18	6	S	J1722	821026	1020	2.5 M						2.5 M		
	18	9	S	J1723	821026	1030	2.5 M	21							
	18	SHAL	W	J1726	821112	1130	5 M	510							
	19	3	S	J1727	821027	1000							3.6 M		
	19	6	S	J1728	821027	1015	2.5 M	5 M					8.5 M		

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	19	9	S	J1729	821027	1045							9.2 M		
	19	12	S	J1730	821027	1120		29					7.4 M		
	19	SHAL	W	J1732	821101	1600		24							
	20	6	S	J1734	821021	1010	3.0 M	6.0 M					2.5 M		
	20	12	S	J1736	821021	1055	2.8 M	8.0 M				3.2 M			
	20	15	S	J1737	821021	1120		16.5							
	20	SHAL	W	J1738	821104	1330		125							
	21	3	S	J1739	821021	1400		21							
	21	6	S	J1740	821021	1445							3.8 M		
	21	9	S	J1741	821021	1510	18	9 M					2.5 M		
	21	12	S	J1742	821021	1535		318							
	21	SHAL	W	J1744	821105	1030		100 K							
	22	3	S	J1745	821012	0900	7.3 M						2.7 M		
	22	6	S	J1746	821012	0930	16								
	22	9	S	J1747	821012	1000	28	30					2.5 M		
	22	12	S	J1748	821012	1030	21.3						2.5 M		
	22	15	S	J1749	821012	1100		46					59		
	23	3	S	J1757	821026	1130							3.2 M		
	23	6	S	J1758	821026	1150		8.6 M					4.1 M		
	23	9	S	J1759	821026	1200		6 M					4.5 M		
	24	3	S	J1763	821022	0950		20							
	24	9	S	J1765	821022	1020		20							
	24	15	S	J1767	821022	1055		7 M				2.5 M			
	25	6	S	J1770	821026	1355		292							
	25	9	S	J1771	821026	1440	6 M	22					2.5 M		
	25	SHAL	W	J1774	821111	1130	19 M								
	26	3	S	J1781	821026	1425							4.7 M		
	26	6	S	J1782	821026	1440							3.8 M		
	26	9	S	J1783	821026	1450							4.2 M		
	27	SHAL	W	J0462	821116	1100		16 K							
	28	SHAL	W	J0463	821116	1230	19 M	5400	14 M						
	29	SHAL	W	J0461	821115	1300		630							
BERM #1		1	S	J1787	821025	1000		2.5 M					2.5 M		
BERM #2		1	S	J1788	821025	1015							2.6 M		
BERM #3		1	S	J1789	821025	1030		5.4 M					3.1 M		
BERM #4		1	S	J1790	821025	1045		25.52					2.5 M		
BERM #5		1	S	J1791	821025	1100		130							
BERM #6		1	S	J1792	821025	1115							6.1 M		
BERM #7		1	S	J1793	821025	1130		3 M					7.8 M		
BERM #8		1	S	J1794	821025	1145					2.5 M		4.7 M		
BERM #9		1	S	J1795	821025	1200	13						3.1 M		
BLANK			S	J1797	821008			88							
DRILLER'S WATER			W	J1799	821012			56							
SS#2		0	S	J1628	821118	0952	2.5 M	21					10 M		
SS#3		0	S	J1629	821118	0956		27					6.1 M		
SS#4		0	S	J1635	821118	1002		21					3.4 M		

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SS#5		0	S	J1641	821118	1008		14.9					6.7 M		
SS#6		0	S	J1646	821118	1027		23					15		
SS#7		0	S	J1647	821118	1036		29					14		
SS#8		0	S	J1659	821118	1041		51					6.0 M		
SS#9		0	S	J1673	821118	1044		33					2.5 M		
SS#11		0	S	J1675	821118	1050		63					25		
SS#12		0	S	J1676	821118	1053		10 M					8 M		
TRANSPORT BLANK			W	J0429	821101	1100		11 M							

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	01	3	S	J1601	821007	0900			3.4 M	
	01	6	S	J1602	821007	0915			2.5 M	
	01	SHAL	W	J1606	821108	1330			3900	
	01	DEEP	W	J1612	821108	1400			46	
	02	12	S	J1616	821014	1040	88			
	02	15	S	J1617	821014	1045			80	
	02	SHAL	W	J1618	821102	1100	8.4 M	11 M	3600	
	03	6	S	J1620	821014	1205			2.5 M	
	03	9	S	J1621	821014	1210			2.5 M	
	04	6	S	J1626	821018	1430		2.5 M		
	04	9	S	J1627	821018	1435			2.5 M	
	04	SHAL	W	J1630	821102	1500		4000	1800	250
	05	6	S	J1632	821018	1330	2.5 M			
	05	9	S	J1633	821018	1330	2.6 M		2.5 M	
	05	12	S	J1634	821018	1330	19	126	192	
	05	SHAL	W	J1636	821103	1500	37	4100	16 K	5 M
	06	12	S	J1640	821018	1100			2.5 M	
	06	SHAL	W	J1642	821103	1100	10 M	100	2200	
	07	SHAL	W	J1648	821103	1430	7.2 M	62	1500	40
	08	6	S	J1650	821025	1425			6.6	
	08	9	S	J1651	821025	1440			3.1 M	
	08	SHAL	W	J1654	821108	1500	6.5 M	23 M	3100	26
	09	9	S	J1657	821019	1040	3.4 M		2.8 M	
	09	12	S	J1658	821019	1045			7.0 M	
	09	SHAL	W	J1660	821103	1500		2400	17 K	
	10	9	S	J1663	821019	1310		3.7 M		
	10	12	S	J1664	821019	1340	2.5 M	68	4.6 M	
	10	15	S	J1665	821019	1405	2.5 M	19	2.5 M	
	10	SHAL	W	J1666	821104	1000	5 M	2300	910	
	11	3	S	J1667	821008	1100			4 M	
	11	6	S	J1668	821008	1115	2.5 M	2.5 M	19	
	11	8	S	J1669	821008	1130	2.5 M	6.1 M	38	
	11	10	S	J1670	821008	1145		10 M	9.5 M	
	11	12	S	J1671	821008	1200	81	83	312	
	11	SHAL	W	J1672	821109	1030		2800	80 K	
	11	DEEP	W	J1678	821109	1100		1100	14 K	
	12	12	S	J1682	821025	1230			4.9 M	
	12	15	S	J1683	821025	1240			38	
	12	SHAL	W	J1684	821103	1200	5.4 M	66	480	5 M
	13	6	S	J1686	821027	1325		2.5 M		
	14	3	S	J1691	821020	0945	49		11 M	
	14	6	S	J1692	821020	1020	48		6.9 M	
	14	9	S	J1693	821020	1040	113	4.1 M	44	
	14	12	S	J1694	821020	1100	274	27	169	
	14	SHAL	W	J1696	821104	1400	530	540	3400	
	15	6	S	J1698	821025	1510	72 K	48 K	580 K	

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ORGANIC ANALYSES

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KENT, WASHINGTON

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K = MULTIPLY THE VALUE BY 1,000
KK = MULTIPLY THE VALUE BY 1,000,000

STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES			
							TETRA CHLORO ETHENE	TOLUENE	TRICHLOR ETHENE	VINYL CHLORIDE
	15	9	S	J1699	821025	1520	14 KM	9.1KM	180 K	
	15	SHAL	W	J1702	821112	1230		5 M	210 K	
	16	3	S	J1703	821020	1310	3.7 M	2.5 M	4.6 M	
	16	15	S	J1707	821020	1430			6.5 M	
	16	SHAL	W	J1708	821104	1100	7.7 M	18 M	990	
	17	3	S	J1709	821011	1100		39 K		
	17	6	S	J1710	821011	1120		394 K	558 K	
	17	9	S	J1711	821011	1150		280 K	350 K	
	17	12	S	J1712	821011	1230	36	19.9K	25.3K	
	17	15	S	J1713	821011	1300		3128	4760	
	17	21	S	J1716	821013	1350	11.7	891	1406	
	17	24	S	J1717	821013	1400	2.5 M	90	62	
	17	27	S	J1718	821013	1405		222		
	17	30	S	J1719	821013	1420		203		
	17	SHAL	W	J0427	821110	1000		22 K	42 K	
	17	DEEP	W	J1720	821110	1100		430	830	
	18	3	S	J1721	821026	1000	2.5 M	2.5 M	15	
	18	6	S	J1722	821026	1020	2.5 M		13	
	18	9	S	J1723	821026	1030		2.5 M	21	
	18	SHAL	W	J1726	821112	1130	7.6 M	7.5 M	900	
	19	6	S	J1728	821027	1015		2.5 M	2.5 M	
	19	9	S	J1729	821027	1045			7.8 M	
	19	12	S	J1730	821027	1120			23	
	20	3	S	J1733	821021	0940	509			
	20	6	S	J1734	821021	1010	530	2.5 M	27	
	20	9	S	J1735	821021	1030	1300		676	
	20	12	S	J1736	821021	1055	484	6.4 M	544	
	20	15	S	J1737	821021	1120	123		69	
	20	SHAL	W	J1738	821104	1330	1800		1100	
	21	9	S	J1741	821021	1510	2.5 M	6.4 M	116	
	21	12	S	J1742	821021	1535			1520	
	21	15	S	J1743	821021	1545			37	
	21	SHAL	W	J1744	821105	1030			170 K	360
	22	3	S	J1745	821012	0900		4.2 M	2.5 M	
	22	6	S	J1746	821012	0930		11 M	7.6 M	
	22	9	S	J1747	821012	1000	2.5 M	43	8.2 M	
	22	12	S	J1748	821012	1030	2.5 M	26	5.2 M	
	22	15	S	J1749	821012	1100		2.5 M	2.5 M	
	22	SHAL	W	J1750	821110	1200		68	380	
	22	DEEP	W	J1756	821110	1300			17 K	
	23	3	S	J1757	821026	1130		2.5 M		
	23	6	S	J1758	821026	1150		10 M		
	23	9	S	J1759	821026	1200		25		
	23	SHAL	W	J1762	821026	1430		85		
	24	9	S	J1765	821022	1020	77		4.7 M	
	24	12	S	J1766	821022	1045	280		5.5 M	2.8 M

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STATION DESCRIPTION	STA NUM	WELL DEPTH	M	OTR NUM	DATE	TIME	VOLATILES: TETRA CHLORO ETHENE	TOLUENE	TRICHLOR ETHENE	VINYL CHLORIDE
	24	15	S	J1767	821022	1055	2.5 M	2.5 M	4.8 M	
	25	6	S	J1770	821026	1355		216	213	
	25	9	S	J1771	821026	1440	2.5 M	19.5	6.4 M	2.8 M
	25	SHAL	W	J1774	821111	1130		22 M	8.5 M	23 M
	26	3	S	J1781	821026	1425	4.2 M	5 M	124	
	26	6	S	J1782	821026	1440	16	5.2 M	180	
	26	9	S	J1783	821026	1450	10 M		77	
	26	SHAL	W	J1786	821111	1230			1300	
	27	SHAL	W	J0462	821116	1100		5 M	140 K	
	28	SHAL	W	J0463	821116	1230	50	110	840	
	29	SHAL	W	J0461	821115	1300		5 M	120	
BERM #1		1	S	J1787	821025	1000			2.5 M	
BERM #3		1	S	J1789	821025	1030	11 M		18	
BERM #4		1	S	J1790	821025	1045			37	
BERM #5		1	S	J1791	821025	1100			3.1 M	
BERM #6		1	S	J1792	821025	1115			2.6 M	
BERM #7		1	S	J1793	821025	1130			2.5 M	
BERM #8		1	S	J1794	821025	1145	2.5 M	2.5 M	21	
BERM #9		1	S	J1795	821025	1200			6.2 M	
BLANK			S	J1797	821008				6.8 M	
SS#2		0	S	J1628	821118	0952	99	2.5 M	2.5 M	
SS#4		0	S	J1635	821118	1002		2.8 M	10 M	
SS#7		0	S	J1647	821118	1036			2.5 M	
SS#11		0	S	J1675	821118	1050			2.5 M	
SS#12		0	S	J1676	821118	1053			2.5 M	
TRANSPORT BLANK			W	J0429	821101	1100			76	

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Washington Dept of Ecology